

NASA TECHNICAL  
MEMORANDUM

N 7 2 - 2 4 9 4 0

NASA TMX - 64657

ATM/CABLE ARCH AND BEAM STRUCTURAL TEST PROGRAM

CASE FILE  
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Astronautics Laboratory

January 1972

NASA

*George C. Marshall Space Flight Center  
Marshall Space Flight Center, Alabama*

1. REPORT NO. <b>TM X- 64657</b>	2. GOVERNMENT ACCESSION NO.	3. RECIPIENT'S CATALOG NO.	
4. TITLE AND SUBTITLE  <b>ATM/Cable Arch and Beam Structural Test Program</b>		5. REPORT DATE <b>January 1972</b>	
		6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) <b>J. A. Housley</b>		8. PERFORMING ORGANIZATION REPORT #	
9. PERFORMING ORGANIZATION NAME AND ADDRESS  <b>George C. Marshall Space Flight Center Marshall Space Flight Center, Alabama 35812</b>		10. WORK UNIT NO.	
		11. CONTRACT OR GRANT NO.	
12. SPONSORING AGENCY NAME AND ADDRESS <b>National Aeronautics and Space Administration Washington, D. C. 20546</b>		13. TYPE OF REPORT & PERIOD COVERED  <b>Technical Memorandum</b>	
		14. SPONSORING AGENCY CODE	
15. SUPPLEMENTARY NOTES  <b>Prepared by Test Division, Astronautics Laboratory, Science and Engineering</b>			
16. ABSTRACT  <p>This report describes the structural testing of an Apollo Telescope Mount (ATM) Cable Arch and Beam Assembly. Static loads were applied to simulate the critical conditions expected during transportation and launch of the ATM.</p> <p>During the running of Test 4 a failure occurred in the fitting (MSFC drawing 30M16275-3) which, in the rack assembly, attaches the arch to the roll ring. Following installation of a redesigned part, the test was successfully rerun.</p> <p>All test objectives were met. Stress and deflection data show that the assembly is structurally adequate for use in the ATM.</p>			
17. KEY WORDS <b>ATM Cable Arch and Beam Testing Test Conditions Test Hardware Test Setup Instrumentation Test Procedure</b>		18. DISTRIBUTION STATEMENT  <b>Unclassified - Unlimited</b>  <i>Nirine M. Thompson</i>	
19. SECURITY CLASSIF. (of this report) <b>Unclassified</b>	20. SECURITY CLASSIF. (of this page) <b>Unclassified</b>	21. NO. OF PAGES <b>108</b>	22. PRICE <b>\$ 3.00</b>

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## ATM/CABLE ARCH AND BEAM STRUCTURAL TEST PROGRAM

### INTRODUCTION

The Apollo Telescope Mount (ATM) Cable Arch and Beam is the structural assembly which provides support for electrical cables which run from the rack frame to equipment located in the canister. This report describes a series of structural tests performed on a Cable Arch and Beam Assembly to qualify its design for use in orbital missions.

Loads applied during these tests simulated the most severe conditions which are expected to occur during transportation of the ATM aboard the Super Guppy airplane and during launch of the Saturn V booster. Particular objectives were:

1. To verify the structural integrity of the Cable Arch and Beam Assembly.
2. To determine deflections and stresses occurring under maximum loading conditions and to determine the amount of permanent set after removal of loads.
3. To verify analytical methods used to predict stress levels and deflections.

These tests were performed in accordance with the document "Structural Test and Instrumentation Requirements for the ATM Cable Arch and Beam" issued by Analytical Mechanics Division, Astronautics Laboratory, Science and Engineering (S&E-ASTN-A).

### TEST CONDITIONS

Four conditions of testing were performed under aircraft transportation conditions. The cases were:

1. Case 1 — High angle of attack;  $\dot{x} = -3.95$ ,  $\dot{z} = 0.242$ ,  $\ddot{\theta} = 0.0023$
2. Case 2 — Steady state floor vibration;  $\dot{x} = -1.0$ ,  $\dot{z} = 1.52$ ,  $\ddot{\theta} = 0.0223$

3. Case 3 — Steady state floor vibration;  $\dot{x} = 1.0$ ,  $\dot{z} = -1.52$ ,  
 $\ddot{\theta} = 0.0223$

4. Case 4 — Steady state floor vibration;  $\dot{x} = -1.0$ ,  $\dot{y} = 1.52$ ,  
 $\ddot{\theta} = 0.0223$ ,

and four conditions of testing were performed under flight conditions. The cases were:

5. Case 5 — Saturn 1-B Liftoff;  $\dot{x} = 3.93$ ,  $\dot{z} = 0.56$ ,  $\ddot{\theta} = -0.0053$

6. Case 6 — Saturn 1-B Liftoff;  $\dot{x} = 3.93$ ,  $\dot{z} = -0.56$ ,  $\ddot{\theta} = 0.0053$

7. Case 7 — Saturn 1-B Liftoff;  $\dot{x} = 3.93$ ,  $\dot{y} = 0.56$ ,  $\ddot{\theta} = 0.0053$

8. Case 8 — Saturn V maximum acceleration;  $\dot{x} = 4.7$ .

Accelerations,  $\dot{x}$ ,  $\dot{y}$ ,  $\dot{z}$  are in "g's". Angular acceleration,  $\ddot{\theta}$ , is in radian/sec<sup>2</sup>. Those not given are zero.

It will be noted that loads of cases 5, 6, and 7 are for flight onboard a Saturn IB on which the ATM was originally scheduled to be launched. These were used since the design was based on them and they were more severe than the corresponding Saturn V conditions.

Theoretical load values for each condition are given in Table 1. Loads were applied at the points shown in Figure 1.

## TEST HARDWARE

Hardware for these tests was a structurally complete cable arch, roll adapter, and beam assembly as shown in Figure 2. Also refer to Marshall Space Flight Center (MSFC) drawings 10M22003, 10M24003, 30M16223, and 30M16224.

## TEST SETUP

Tests were performed in the extension to the load test annex of building 4619, of the MSFC. The test hardware was located in a specially built test fixture (MSFC drawing 90M04402) which supported the beam at its four end points and the arch at its -X end (Figs. 2-4).

Loads were applied through hydraulic cylinders at the points shown in Figure 1 and were controlled by a load maintainer which allowed the required forces to be applied uniformly as percentage increments of limit levels.

# INSTRUMENTATION

Instrumentation consisted of 25 electrical deflection indicators (EDI), 32 uniaxial strain gages, 20 triaxial strain gage rosettes and 10 load cells. The outputs of the transducers were monitored by a computer-controlled data acquisition system as schematically shown in Figure 5. This system was an analog to a digital conversion link between the test setup and a GE 235 computer which produced a printout of all transducer readings, in engineering units, within approximately 2 min of the time a data scan was requested.

Locations of the strain gages and deflection transducers are shown in Figure 6. Load cell locations are as shown in Figure 1. The polarity of the electrical deflection transducers and load cells was set such that a positive number in the computer printout indicates deflection or load in the directions shown.

## TEST PROCEDURE

Before the running of each test, the load maintainers were pressure calibrated at the 100-percent level. During this operation, hydraulic lines going to the cylinders were blocked off so that the structure was not loaded.

Once calibration was completed and when the data system was ready, zero load conditions were obtained by pressurizing cylinders 1 and 5 to produce a lifting force equal to the dead weight of the test fixtures attached to the specimen. A zero reference scan was then made on the computer. Loads were then slowly applied to the 20-, 40- and 60-percent levels with a data scan being taken at each increment. While loads were being increased to these levels, hydraulic pressures were visually monitored to confirm that the applied loads were "in the ballpark".

At the 60-percent load level, the computer printout of load cell readings was reviewed by the test engineer and by a representative of Space Structure Section, Strength Analysis Branch, Analytical Mechanics Division, Astronautics Laboratory, Science and Engineering (S&E—ASTN—ASP) to verify that all loads were being applied in the right direction and that they were close to the right magnitude. Since strain gage data at this load level, in each case, indicated that stresses were of a relatively low level, and since the load maintainers control less accurately at lower pressures and tend to correct themselves as the calibration level is neared, no effort was made to fine tune the loads at the 60-percent level.

Once the 60-percent data were deemed acceptable, loading proceeded to the 80-percent level where another data scan was made and reviewed. Loads were then fine tuned by adjusting the hydraulic pressure in each cylinder which the printout showed to be applying a load significantly different than its correct load. After the necessary pressure changes were finished, an additional load scan was made. Loads were then raised to the next higher load increment.

This procedure was followed in each test case for raising loads to load levels of 80 percent or greater. For each case, data scans were taken and reviewed at the 0, 20, 40, 60, 80, 100, 110, 120 and 125 percent of limit load levels. Additional load scans were taken at levels requested by Strength Analysis Branch, Analytical Mechanics Division, Astronautics Laboratory, Science and Engineering (S&E—ASTN—AS), as shown in the printouts, while loads were being removed.

## RESULTS

Tests 1, 2 and 3 were completed without failure. In each case, recorded stresses were well below the yield point of the material. Measured deflections, particularly lateral deflections of the arch, were several times greater than had been anticipated. Predictions furnished by S&E—ASTN—AS indicated that the maximum deflection occurring in any test would be about 0.457 cm (0.18 in.). Actual measured deflections exceeded 1.09 cm (0.43 in.) in each test. Data from these tests are shown in Tables 2-4.

During the running of Test 4 a failure occurred in the fitting (MSFC drawing 30M16275-3) which, in the rack assembly attaches the arch to the roll ring. In the setup for these tests, however, the roll ring was replaced by the test fixture. The failure, (Figs. 7-9), occurred after the 80 percent of limit data had been reviewed and accepted. Loads were being raised to the 100-percent level, but as the 98-percent level was reached the failure occurred. Since failure of this part was unexpected, it was not instrumented. Data from this test are given in Table 5.

The maximum stress recorded by any gage prior to (80 percent of limit) the failure was 1716 psi (gage 226). As in the other cases deflections were much higher than predicted with the highest deflection recorded at the 80-percent level being 3.0 cm (1.18 in.).

Another set of attachment fittings, identical to those used at the time of failure, was installed to allow the continuation of the test program while stronger parts were being designed and fabricated.

Load Cases 5, 6, 7 and 8, which produced a less severe reaction in these fittings, were then run. As before, measured stresses were low and deflections were high. During the first attempt to perform load conditions 5, it was noted that the portion of the test fixture to which the upper end of the arch was attached exhibited an excessive torsional deformation. Testing was stopped until reinforcement was made.

Case 5 was then rerun to completion. Comparison of data from these two runs indicate that deflections of the specimen in the latter case were lower by an average of approximately 15 percent. It may be concluded that deflections seen in the cases run earlier were similarly influenced by the stiffness of the test fixture. No attempt was made in the design of the test fixture to duplicate the stiffness of the roll ring or other rack attachment points.

Cases 6, 7 and 8 were run without incident. In each case stresses were low level, but deflections were higher than predicted.

S&E-ASTN-ASP requested that Case 4 be rerun with the old type fitting to determine if deflection of the test fixture caused a premature failure. During the second run, the fitting did, in fact, sustain a higher load, with failure occurring this time as the 110 percent of limit loads were being reviewed. The mode of failure was essentially identical to the previous failure (Figs. 10 and 11).

The redesigned fittings (MSFC drawing No. 30M18254) were then installed and successfully loaded to the 125 percent of limit load level.

A record of applied loads and resulting stresses and deflections is given in Tables 2-11.

## CABLE-ARCH LOAD DEFLECTION TESTS

Following completion of the transportation and flight load cases, tests were performed at the request of the Development Section, Structural Development Branch, Engineering Division, Astronautics Laboratory, Science and Engineering (S & E-ASTN-ESD) to determine spring rates of the cable arch.

For these test the fixtures were modified as shown in Drawing 90M04483 and Figure 12. This setup provided for loading the roll ring end of the arch in either the radial or longitudinal direction. Rollers bearing against two sides of the loading plate limited the direction of motion of the arch end to that of the applied load.

Incremental loads were applied by adding precalibrated weights to a cable attached to the end of the loading plate. Data from three mechanical deflection indicators were recorded manually at each load increment.

A record of applied loads and resulting deflections is given in Tables 12 and 13.

TABLE 1. LIMIT LOAD VALUES (100 PERCENT)

Load Point	Load Case							
	1	2	3	4	5	6	7	8
1	-1576	-399	-399	-399	1568	1568	1568	1876
2	0	0	0	1318	0	0	397	0
3	188	1328	-1328	0	397	-397	0	0
4	-300	-102	69	-75	289	301	295	353
5	-1283	-616	0	-315	1166	1310	1238	1480
6	0	0	0	453	0	0	205	0
7	0	0	0	210	0	0	0	0
8	97	666	-666	0	204	-204	0	0
9	0	0	0	344	0	0	127	0
10	58	395	-395	0	127	-127	0	0

Note: Positive directions are as shown in Figure 1. (Loads are in pounds.)

TABLE 2. TEST DATA, LOAD CASE 1

AIR CABLE ARCH AND BEAM SIMULTANEOUS CASE 1 337001 1-18-71									
LOAD CELLS IN POUNDS									
GAGE NUM	SCAN 006	SCAN 007	SCAN 009	SCAN 010	SCAN 012	SCAN 013	SCAN 015	SCAN 016	SCAN 017
X LOAD	000	000	040	060	080	100	110	120	125
PSI	000	000	000	000	000	000	000	000	000
001	0	0	595	925	1,254	1,557	1,750	1,889	1,973
002	0	0	0	0	1	0	1	0	0
003	3	21	59	90	149	191	210	231	240
004	0	0	119	180	243	299	333	360	375
005	0	447	499	750	1,004	1,255	1,414	1,537	1,599
006	0	0	0	0	0	0	0	0	0
007	0	0	0	0	0	0	0	0	0
008	0	11	25	45	80	100	112	122	128
009	0	0	0	0	0	0	0	0	0
010	0	13	13	24	44	48	60	63	68

AIR CABLE ARCH AND BEAM SIMULTANEOUS CASE 1 337001 1-18-71									
LOAD CELLS IN POUNDS									
GAGE NUM	SCAN 018	SCAN 019	SCAN 020	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD	110	000	000						
PSI	000	000	000						
001	1,750	992	54						
002	0	0	0						
003	220	122	1						
004	333	192	11						
005	1,413	775	15						
006	0	0	0						
007	0	0	0						
008	132	79	5						
009	0	0	0						
010	67	50	10						

TABLE 2. (Continued)

ATM CABLE ARCH AND BEAM STRUCTURAL CASE 1 337001 1-18-71												DISPLACEMENT POYS				FINAL PRINT	
GAGE NUM	SCAN 006	SCAN 007	SCAN 009	SCAN 010	SCAN 012	SCAN 013	SCAN 015	SCAN 016	SCAN 017								
X LOAD	000	000	040	060	080	100	110	120	125								
PSI	000	000	000	000	000	000	000	000	000								
101	-	0.0002	0.0019	0.0053	0.0092	0.0126	0.0162	0.0188	0.0203	0.0212							
102	0.0000	-	0.0016	-	0.0168	-	0.1593	-	0.2422	-	0.2422	-	0.2534	-	0.2534		
103	-	0.0003	-	0.0778	-	0.1654	-	0.2341	-	0.2341	-	0.2347	-	0.2660	-		
104	0.0002	-	0.0359	-	0.1104	-	0.1526	-	0.2159	-	0.2159	-	0.2340	-	0.2459		
105	-	0.0002	-	0.0808	-	0.1221	-	0.1683	-	0.2364	-	0.2364	-	0.2684	-		
106	0.0000	-	0.1035	-	0.1850	-	0.2689	-	0.3686	-	0.4638	-	0.5271	-	0.6033		
107	-	0.0006	-	0.1028	-	0.1786	-	0.2606	-	0.3563	-	0.4482	-	0.5104	-		
108	0.0000	-	0.1054	-	0.1835	-	0.2683	-	0.3625	-	0.4632	-	0.5280	-	0.6071		
109	0.0000	-	0.0044	-	0.0048	-	0.0111	-	0.0179	-	0.0243	-	0.0401	-	0.0528		
110	0.0000	-	0.0754	-	0.1372	-	0.2031	-	0.2730	-	0.3438	-	0.3902	-	0.4461		
111	0.0000	-	0.0732	-	0.1334	-	0.1955	-	0.2683	-	0.3376	-	0.3846	-	0.4406		
112	0.0000	-	0.0722	-	0.1321	-	0.1948	-	0.2681	-	0.3397	-	0.3879	-	0.4450		
113	0.0000	-	0.0079	-	0.0113	-	0.0128	-	0.0139	-	0.0137	-	0.0121	-	0.0104		
114	0.0000	-	0.0117	-	0.0082	-	0.0020	-	0.0210	-	0.0330	-	0.0429	-	0.0540		
115	0.0000	-	0.0063	-	0.0023	-	0.0186	-	0.0410	-	0.0577	-	0.0698	-	0.0836		
116	0.0000	-	0.0108	-	0.0029	-	0.0020	-	0.0289	-	0.0409	-	0.0499	-	0.0592		
117	0.0003	-	0.0094	-	0.0143	-	0.0158	-	0.0161	-	0.0146	-	0.0120	-	0.0097		
118	0.0003	-	0.0023	-	0.0032	-	0.0070	-	0.0271	-	0.0379	-	0.0479	-	0.0581		
119	-	0.0002	-	0.0043	-	0.0037	-	0.0058	-	0.0234	-	0.0324	-	0.0450	-		
120	0.0012	-	0.0021	-	0.0006	-	0.0109	-	0.0303	-	0.0389	-	0.0483	-	0.0582		
121	0.0000	-	0.0058	-	0.0079	-	0.0087	-	0.0102	-	0.0093	-	0.0084	-	0.0067		
122	0.0000	-	0.0041	-	0.0056	-	0.0059	-	0.0053	-	0.0047	-	0.0024	-	0.0021		
123	0.0000	-	0.0062	-	0.0110	-	0.0083	-	0.0030	-	0.0059	-	0.0119	-	0.0140		
124	0.0000	-	0.0058	-	0.0085	-	0.0066	-	0.0056	-	0.0074	-	0.0111	-	0.0132		
125	0.0002	-	0.0053	-	0.0078	-	0.0092	-	0.0095	-	0.0095	-	0.0085	-	0.0080		
126	0.0002	-	0.0005	-	0.0004	-	0.0002	-	0.0007	-	0.0013	-	0.0027	-	0.0032		
127	0.0000	-	0.0145	-	0.0328	-	0.0480	-	0.0605	-	0.0755	-	0.0844	-	0.0922		
128	-	0.0002	-	0.0181	-	0.0346	-	0.0482	-	0.0596	-	0.0754	-	0.0954	-		
129	0.0002	-	0.0007	-	0.0019	-	0.0023	-	0.0025	-	0.0019	-	0.0016	-	0.0021		

TABLE 2. (Continued)

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 1 337001 1-18-71										DISPLACEMENT POYS		FINAL PRINT	
GAGE NUM	SCAN U18	SCAN U19	SCAN U20	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD PSI	110 000	080 000	000 000										
101	0.0219	0.0166	0.0050										
102	- 0.2294	- 0.1307	- 0.0159										
103	- 0.2417	- 0.1683	- 0.0206										
104	- 0.2216	- 0.1398	- 0.0163										
105	- 0.2433	- 0.1502	- 0.0210										
106	- 0.2562	- 0.1692	- 0.0885										
107	- 0.5392	- 0.3544	- 0.0916										
108	- 0.5595	- 0.3672	- 0.0956										
109	- 0.502	- 0.3171	- 0.0135										
110	- 0.4074	- 0.2593	- 0.0532										
111	- 0.4023	- 0.2561	- 0.0541										
112	- 0.4072	- 0.2587	- 0.0554										
113	0.0091	0.0090	0.0083										
114	0.0519	0.0360	- 0.0076										
115	0.0782	0.0324	- 0.0063										
116	0.0554	0.0366	- 0.0137										
117	0.0070	0.0067	0.0015										
118	0.0592	0.0406	0.0035										
119	0.0507	0.0340	0.0000										
120	0.0589	0.0500	0.0009										
121	0.0064	0.0064	0.0035										
122	0.0006	0.0006	0.0006										
123	0.0197	0.0184	0.0041										
124	0.0183	0.0166	0.0009										
125	0.0060	0.0035	0.0004										
126	- 0.0036	- 0.0034	- 0.0007										
127	- 0.0803	- 0.0683	0.0012										
128	- 0.0847	- 0.0517	- 0.0041										
129	0.0011	- 0.0018	- 0.0025										

TABLE 2. (Continued)

ATM CABLE ARCH AND BEAM STRUCTURAL CASE 1 337001 1-18-71											SINGLE STRAIN GAGES				FINAL PRINT		
GAGE NUM	SCAN 006	SUM 007	SCAN 007	SCAN 009	SCAN 010	SCAN 012	SCAN 013	SCAN 015	SCAN 016	SCAN 017							
K LOAD	000	000	000	040	060	080	100	110	120	125							
PSI	000	000	000	000	000	000	000	000	000	000							
201	42	188	377	586	816	962	1,109	1,193	1,234								
202	21	146	335	523	690	837	983	-	1,025	-							
203	21	146	314	460	649	795	921	-	1,025	-							
204	42	126	314	523	690	879	983	-	1,046	-							
205	0	188	356	544	732	879	983	-	1,067	-							
206	63	188	335	586	795	921	1,131	-	1,234	-							
207	0	167	335	626	816	1,088	1,234	-	1,318	-							
208	42	188	418	649	900	1,088	1,213	-	1,276	-							
209	21	84	188	335	502	670	711	-	774	-							
210	0	188	377	586	795	983	1,088	-	1,172	-							
211	0	230	481	690	921	1,130	1,297	-	1,381	-							
212	21	0	84	377	586	795	982	-	1,025	-							
213	0	209	481	711	983	1,193	1,360	-	1,465	-							
214	21	103	272	460	628	795	900	-	941	-							
215	0	84	230	398	544	649	774	-	816	-							
216	21	472	460	753	1,004	1,213	1,381	-	1,485	-							
217	21	42	126	209	314	377	439	-	460	-							
218	21	146	293	377	502	628	670	-	732	-							
219	42	63	188	356	523	607	690	-	732	-							
220	63	103	230	314	418	439	481	-	544	-							
221	21	293	460	711	858	1,109	1,130	-	1,276	-							
222	21	431	460	711	941	1,172	1,318	-	1,402	-							
223	0	146	230	418	607	753	795	-	837	-							
224	63	146	293	439	607	858	921	-	983	-							
225	0	21	21	21	21	0	63	-	84	-							
226	21	64	126	146	103	146	84	-	84	-							
227	21	42	126	126	103	63	42	-	63	-							
228	21	21	21	21	146	188	230	-	230	-							
229	21	0	21	0	0	63	21	-	21	-							
230	21	21	42	42	21	21	0	-	21	-							
231	42	0	21	21	84	84	84	-	42	-							
232	0	64	84	21	63	42	42	-	126	-							

TABLE 2. (Continued)

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 1 337001 1-18-71										SINGLE STRAIN GAGES			FINAL PRINT
GAGE NUM	SCAN U18	SCAN U19	SCAN U20	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD PSI	110 000	000 000	000 000										
201	1,067	628	21										
202	941	523	21										
203	983	523	42										
204	962	523	42										
205	983	523	0										
206	1,130	670	42										
207	1,193	670	42										
208	1,213	711	0										
209	732	535	21										
210	1,109	628	42										
211	1,297	795	105										
212	858	356	670										
213	1,381	816	42										
214	900	398	63										
215	795	514	42										
216	1,402	658	105										
217	439	188	42										
218	670	335	21										
219	670	351	209										
220	418	63	251										
221	1,234	649	105										
222	1,318	732	84										
223	795	481	63										
224	983	607	0										
225	105	105	84										
226	42	63	105										
227	0	84	105										
228	272	472	146										
229	84	21	63										
230	42	63	42										
231	21	105	42										
232	84	42	0										

TABLE 2. (Continued)

RECTANGULAR ROSETTES FINAL PRINT												
ATM CABLE ARCH AND BEAM STRUCTURAL CASE 1 33/001 1-18-71												
WAVE NUM	SCAN 006	SCAN 007	SCAN 009	SCAN 010	SCAN 012	SCAN 013	SCAN 015	SCAN 016	SCAN 017			
K LOAD	000	080	040	060	080	100	110	120	125			
PSI	000	000	000	000	000	000	000	000	000			
301	47	422	448	658	983	1,259	1,424	1,571	1,639			
302	15	60	145	216	297	364	418	470	485			
303	16	81	151	221	343	447	503	541	577			
304	43	75	86	88	85	85	85	86	84			
305	71	82	55	33	90	94	137	136	129			
306	102	145	367	591	590	718	803	823	941			
307	113	113	211	267	340	406	475	479	535			
308	42	28	32	21	17	18	14	12	14			
309	31	466	498	759	1,086	1,330	1,469	1,618	1,684			
310	31	109	158	230	413	544	590	599	658			
311	0	79	170	259	336	393	469	509	513			
312	43	72	83	63	85	82	83	83	82			
313	9	123	52	138	117	83	203	148	226			
314	40	432	323	519	595	823	921	1,007	1,085			
315	25	65	135	205	289	370	359	430	429			
316	36	7	18	16	15	19	14	17	14			
317	36	115	649	1,051	1,464	1,873	2,128	2,269	2,398			
318	58	34	38	74	98	126	182	136	162			
319	11	174	305	468	683	874	973	1,067	1,118			
320	67	81	84	83	83	83	83	83	83			
321	32	45	166	236	300	404	448	529	520			
322	94	467	646	794	1,136	1,439	1,613	1,813	1,853			
323	63	111	240	279	418	518	582	642	667			
324	43	22	16	11	10	8	9	10	10			
325	110	948	723	1,052	1,542	1,912	2,189	2,379	2,487			
326	13	89	214	334	456	552	622	682	698			
327	47	130	254	374	543	679	784	848	895			
328	43	83	79	83	85	85	85	85	85			
329	15	165	150	309	458	581	619	660	744			
330	47	335	568	908	1,291	1,605	1,785	1,932	2,035			
331	16	85	209	300	416	512	583	636	645			
332	0	11	10	7	5	5	5	6	5			
333	27	61	90	136	55	115	64	127	141			
334	4	370	909	1,426	1,944	2,445	2,747	3,098	3,169			
335	11	304	409	645	944	1,165	1,342	1,465	1,514			
336	67	8	1	1	1	1	2	2	2			
337	0	220	435	634	923	1,163	1,333	1,415	1,551			
338	32	32	34	23	108	148	177	209	291			
339	0	126	201	290	407	507	568	603	630			
340	43	90	84	84	85	86	85	86	85			
341	47	68	211	300	481	591	667	749	773			
342	40	356	976	1,511	2,111	2,594	2,986	3,248	3,380			
343	25	244	383	605	915	1,001	1,159	1,249	1,303			
344	9	7	5	4	3	3	2	3	3			
345	7	271	540	768	1,054	1,379	1,453	1,629	1,692			
346	17	42	115	198	195	307	327	369	432			
347	71	115	213	315	429	536	583	630	630			
348	42	82	89	84	86	88	86	89	89			

TABLE 2. (Continued)

ALM CABLE ARCH AND BEAM STRUCTURAL CASE 1 337001 1-18-71										RECTANGULAR ROSETTES		FINAL PRINT	
CASE NUM	SCAN U18	SCAN U19	SCAN U20	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	110	000	000	000	000	000	000	000	000	000	000	000	000
PSI	000	000	000	000	000	000	000	000	000	000	000	000	000
301	1,527	828	-	96									
302	472	328	-	34									
303	524	250	-	65									
304	-	85	-	83									
305	110	156	-	277									
306	-	859	-	67									
307	485	341	-	105									
308	18	1	-	6									
309	1,531	404	-	219									
310	625	210	-	0									
311	454	338	-	110									
312	-	86	-	34									
313	-	203	-	9									
314	-	921	-	53									
315	-	359	-	22									
316	-	14	-	22									
317	2,137	1	-	22									
318	142	8,261	-	24									
319	998	113	-	56									
320	83	274	-	40									
321	-	85	-	84									
322	-	463	-	64									
323	-	319	-	40									
324	-	1,661	-	71									
325	-	599	-	56									
326	-	12	-	49									
327	2,258	2,235	-	105									
328	678	388	-	74									
329	790	424	-	90									
330	-	84	-	37									
331	-	624	-	61									
332	-	1,780	-	30									
333	-	578	-	46									
334	-	7	-	75									
335	-	135	-	184									
336	-	2,894	-	184									
337	-	1,376	-	184									
338	-	2	-	10									
339	1,366	808	-	76									
340	195	98	-	44									
341	585	355	-	60									
342	-	87	-	78									
343	-	717	-	38									
344	-	3,093	-	243									
345	-	1,188	-	103									
346	-	3	-	2									
347	1,538	933	-	154									
348	336	1,010	-	29									
349	601	3,866	-	92									
350	-	87	-	75									

TABLE 2. (Continued)

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 1 337001 1-18-71 RECTANGULAR ROSETTES FINAL PRINT													
GAGE NUM	SCAN 006	SCAN 007	SCAN 009	SCAN 010	SCAN 012	SCAN 013	SCAN 015	SCAN 016	SCAN 017				
% LOAD	000	020	040	060	080	100	110	120	125				
PSI	000	080	000	000	000	000	000	000	000				
337	103	-	165	-	520	-	720	-	840	-	975	-	1,097
338	53	-	366	-	1,135	-	1,715	-	2,127	-	2,460	-	2,681
339	25	-	100	-	308	-	497	-	644	-	743	-	792
340	36	-	97	-	74	-	73	-	72	-	72	-	73
341	78	-	960	-	861	-	982	-	967	-	1,099	-	1,110
342	16	-	415	-	389	-	579	-	657	-	775	-	841
343	47	-	422	-	236	-	201	-	155	-	162	-	111
344	43	-	22	-	18	-	19	-	12	-	15	-	4
345	9	-	152	-	356	-	603	-	728	-	875	-	968
346	40	-	441	-	1,018	-	1,520	-	1,864	-	2,185	-	2,532
347	25	-	145	-	331	-	459	-	568	-	655	-	703
348	54	-	11	-	13	-	11	-	11	-	12	-	11
349	16	-	181	-	469	-	628	-	751	-	869	-	929
350	19	-	24	-	0	-	28	-	61	-	68	-	39
351	16	-	103	-	235	-	300	-	345	-	400	-	445
352	90	-	61	-	65	-	67	-	68	-	67	-	67
353	16	-	31	-	83	-	111	-	102	-	207	-	167
354	10	-	31	-	52	-	49	-	71	-	83	-	73
355	16	-	31	-	68	-	80	-	87	-	145	-	120
356	43	-	90	-	72	-	84	-	87	-	84	-	87
357	4	-	76	-	149	-	212	-	204	-	276	-	267
358	27	-	44	-	56	-	56	-	79	-	58	-	80
359	11	-	60	-	103	-	134	-	142	-	167	-	174
360	23	-	76	-	74	-	88	-	90	-	86	-	87
361	22	-	40	-	35	-	44	-	61	-	90	-	111
362	22	-	3	-	35	-	44	-	30	-	59	-	49
363	22	-	25	-	11	-	44	-	46	-	75	-	80
364	67	-	31	-	22	-	22	-	15	-	9	-	6
365	27	-	31	-	102	-	105	-	116	-	135	-	127
366	4	-	31	-	39	-	74	-	93	-	135	-	127
367	11	-	31	-	70	-	90	-	85	-	135	-	127
368	23	-	0	-	13	-	19	-	11	-	18	-	13

TABLE 2. (Concluded)

MAIN CABLE ARCH AND BEAM SIMULTANEOUS CASE 1 337001 1-18-71										RECTANGULAR ROSETTES				FINAL PRINT	
GAGE NUM	SCAN U18	SCAN U19	SCAN U20	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	110	000	000	000											
PSI	000	000	000	000											
337	-	1,119	-	751	-	16									
338	-	2,059	-	2,716	-	328									
339	-	770	-	483	-	156									
340	-	73	-	73	-	70									
341	1,137	-	2,167	-	1,262										
342	169	-	282	-	237										
343	-	11	-	493	-	512									
344	-	956	-	18	-	24									
345	-	2,385	-	686	-	97									
346	-	715	-	4,294	-	372									
347	-	12	-	454	-	138									
348	954	-	14	-	15										
349	108	-	268	-	175										
350	423	-	30	-	75										
351	-	67	-	256	-	50									
352	-	217	-	69	-	54									
353	-	61	-	173	-	53									
354	-	139	-	48	-	9									
355	-	82	-	110	-	22									
356	-	299	-	90	-	67									
357	-	49	-	219	-	50									
358	-	174	-	0	-	50									
359	-	87	-	110	-	50									
360	-	121	-	79	-	81									
361	-	75	-	71	-	88									
362	-	28	-	40	-	25									
363	-	75	-	56	-	57									
364	-	9	-	22	-	62									
365	-	154	-	154	-	49									
366	-	92	-	92	-	18									
367	-	123	-	123	-	33									
368	-	20	-	20	-	22									

TABLE 3. TEST DATA, LOAD CASE 2

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 2 337002 1-18-71									
LOAD CELLS IN POUNDS									
FINAL PRINT									
CAGE NUM	SCAN 021	SCAN 022	SCAN 023	SCAN 024	SCAN 025	SCAN 026	SCAN 028	SCAN 029	SCAN 031
X LOAD	000	000	040	060	080	100	110	120	125
PSI	000	000	000	000	000	000	000	000	000
001	2	21	93	180	316	421	473	486	506
002	1	0	0	1	2	1	0	1	1
003	1	247	509	763	1,052	1,320	1,456	1,587	1,658
004	0	6	29	49	71	105	117	136	138
005	0	107	229	345	483	635	684	772	779
006	0	0	0	0	0	0	0	0	0
007	0	0	0	0	0	0	0	0	0
008	0	109	239	368	515	664	730	804	835
009	0	0	0	0	0	0	0	0	0
010	0	59	131	210	299	391	431	474	495

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 2 337002 1-18-71									
LOAD CELLS IN POUNDS									
FINAL PRINT									
CAGE NUM	SCAN 033	SCAN 034	SCAN 035	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD	110	080	000	000	000	000	000	000	000
PSI	080	080	000	000	000	000	000	000	000
001	-	472	-	439	65	-	-	-	-
002	1	1	1	1	1	-	-	-	-
003	3,476	798	4	4	4	-	-	-	-
004	-	128	-	88	11	-	-	-	-
005	-	697	-	366	14	-	-	-	-
006	-	0	0	0	0	-	-	-	-
007	0	0	0	0	0	-	-	-	-
008	763	505	2	2	2	-	-	-	-
009	0	0	0	0	0	-	-	-	-
010	447	435	-	4	4	-	-	-	-

TABLE 3. (Continued)

ALM CABLE ARCH AND BEAM SIMULATIONAL CASE 2 337002 1-18-71												DISPLACEMENT POTS				FINAL PRINT			
GAGE NUM	SCAN 021	SCAN 022	SCAN 023	SCAN 024	SCAN 025	SCAN 026	SCAN 028	SCAN 029	SCAN 031	SCAN 032									
X LOAD	000	080	040	060	080	100	100	110	120	125									
PSI	000	000	000	000	000	000	000	000	000	000									
101	0.0002	0.0048	0.0056	0.0079	0.0114	0.0145	0.0147	0.0164	0.0162										
102	0.0000	0.0096	0.0230	0.0360	0.0558	0.0735	0.0821	0.0911	0.0941										
103	0.0003	0.0044	0.0157	0.0290	0.0490	0.0673	0.0754	0.0841	0.0867										
104	0.0000	0.0042	0.0159	0.0285	0.0481	0.0664	0.0743	0.0832	0.0857										
105	0.0002	0.0056	0.0177	0.0310	0.0518	0.0699	0.0776	0.0859	0.0890										
106	0.0000	0.0048	0.0359	0.0690	0.1317	0.1782	0.1952	0.2195	0.2236										
107	0.0000	0.0176	0.0511	0.0826	0.1254	0.1702	0.1873	0.2096	0.2139										
108	0.0000	0.0149	0.0492	0.0828	0.1279	0.1752	0.1930	0.2178	0.2224										
109	0.0002	0.0005	0.0000	0.0000	0.0044	0.0044	0.0044	0.0024	0.0024										
110	0.0000	0.0167	0.0443	0.0708	0.1025	0.1387	0.1532	0.1713	0.1733										
111	0.0004	0.0166	0.0463	0.0751	0.1103	0.1492	0.1626	0.1843	0.1875										
112	0.0000	0.0148	0.0404	0.0673	0.1023	0.1384	0.1516	0.1731	0.1753										
113	0.0002	0.0011	0.0039	0.0047	0.0047	0.0016	0.0005	0.0026	0.0026										
114	0.0000	0.0067	0.0940	0.1392	0.1953	0.2515	0.2789	0.3090	0.3189										
115	0.0002	0.0222	0.0999	0.1467	0.2037	0.2619	0.2875	0.3208	0.3304										
116	0.0013	0.0537	0.0993	0.1441	0.1978	0.2524	0.2753	0.3075	0.3169										
117	0.0003	0.0064	0.0111	0.0126	0.0105	0.0067	0.0059	0.0035	0.0032										
118	0.0003	0.0215	0.1173	0.1803	0.2582	0.3370	0.3526	0.4184	0.4307										
119	0.0002	0.0530	0.1092	0.1659	0.2343	0.3037	0.3356	0.3736	0.3865										
120	0.0003	0.0466	0.1230	0.1863	0.2619	0.3379	0.3728	0.4041	0.4041										
121	0.0003	0.0035	0.0082	0.0102	0.0114	0.0172	0.0207	0.2140	0.2143										
122	0.0003	0.0019	0.0041	0.0053	0.0059	0.0128	0.0297	2.3328	2.3328										
123	0.0002	0.0456	0.0986	0.1530	0.2198	0.2856	0.3165	0.3524	0.3652										
124	0.0002	0.0214	0.1052	0.1592	0.2225	0.2860	0.3156	0.3502	0.3628										
125	0.0000	0.0027	0.0042	0.0044	0.0064	0.0062	0.0069	0.0095	0.0118										
126	0.0002	0.0004	0.0003	0.0003	0.0016	0.0009	0.0009	0.0004	0.0004										
127	0.0000	0.0149	0.0360	0.0574	0.0859	0.1114	0.1250	0.1385	0.1450										
128	0.0002	0.0188	0.0419	0.0650	0.0908	0.1144	0.1277	0.1406	0.1463										
129	0.0002	0.0014	0.0004	0.0011	0.0018	0.0044	0.0049	0.0058	0.0058										

TABLE 3. (Continued)

ALM CABLE ARCH AND BEAM STRUCTURAL CASE 2 337002 1-18-71			DISPLACEMENT POIS				FINAL PRINT	
GAGE NUM	SCAN 033	SCAN 034	SCAN 035	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	110	000	000	000				
PSI	000	000	000					
101	0.0169	0.0145	-	0.0019				
102	0.0889	0.0212	-	0.0094				
103	0.0821	0.0438	-	0.0110				
104	0.0812	0.0453	-	0.0103				
105	0.0837	0.0460	-	0.0116				
106	0.2077	0.1158	-	0.0196				
107	0.1984	0.1077	-	0.0220				
108	0.2065	0.1116	-	0.0249				
109	0.0022	0.0012	-	0.0046				
110	0.1599	0.0879	-	0.0125				
111	0.1727	0.0935	-	0.0134				
112	0.1610	0.0856	-	0.0152				
113	0.0026	0.0005	-	0.0005				
114	0.3011	0.1824	-	0.0134				
115	0.3117	0.1883	-	0.0145				
116	0.2991	0.1838	-	0.0190				
117	0.0023	0.0053	-	0.0029				
118	0.4065	0.2386	-	0.0172				
119	0.3642	0.2137	-	0.0216				
120	0.2035	0.1211	-	0.2732				
121	0.2137	0.2021	-	0.1692				
122	0.1301	0.1433	-	0.1295				
123	0.3427	0.1850	-	0.0090				
124	0.3406	0.2003	-	0.0166				
125	0.0106	0.0042	-	0.0005				
126	0.0002	0.0003	-	0.0009				
127	0.1378	0.0794	-	0.0024				
128	0.1406	0.0840	-	0.0084				
129	0.0071	0.0057	-	0.0009				

TABLE 3. (Continued)

ALM CABLE ARCH AND BEAM SIMULTANEOUS CASE 2 337002 1-18-71										SINGLE STRAIN GAGES				FINAL PRINT	
GAGE NUM	SCAN 021	SCAN 022	SCAN 023	SCAN 024	SCAN 025	SCAN 026	SCAN 027	SCAN 028	SCAN 029	SCAN 031	SCAN 031	SCAN 031	SCAN 032	SCAN 032	SCAN 032
X LOAD	000	000	040	060	080	100	110	120	125						
PSI	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
201	42	63	63	146	251	272	335	335	335	335	335	335	335	335	335
202	21	21	84	167	293	377	439	439	439	439	439	439	439	439	439
203	0	42	126	230	335	418	460	460	460	460	460	460	460	460	460
204	42	21	42	105	105	167	146	146	146	146	146	146	146	146	146
205	0	42	63	167	167	230	293	293	293	293	293	293	293	293	293
206	21	42	335	523	523	586	1,193	1,193	1,193	1,193	1,193	1,193	1,193	1,193	1,193
207	0	84	188	272	377	481	544	544	544	544	544	544	544	544	544
208	21	42	63	126	209	293	356	356	356	356	356	356	356	356	356
209	0	63	42	84	105	209	209	209	209	209	209	209	209	209	209
210	21	63	146	188	293	314	356	356	356	356	356	356	356	356	356
211	21	146	167	251	418	460	523	523	523	523	523	523	523	523	523
212	0	105	105	42	63	105	105	105	105	105	105	105	105	105	105
213	0	84	167	272	439	502	565	565	565	565	565	565	565	565	565
214	21	21	21	126	197	272	314	314	314	314	314	314	314	314	314
215	42	188	272	335	356	460	502	502	502	502	502	502	502	502	502
216	0	439	439	649	900	1,193	1,276	1,276	1,276	1,276	1,276	1,276	1,276	1,276	1,276
217	42	105	209	377	502	649	711	711	711	711	711	711	711	711	711
218	0	84	251	439	628	774	921	921	921	921	921	921	921	921	921
219	21	188	481	795	1,067	1,444	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569
220	42	309	439	670	921	1,088	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233
221	0	451	586	816	1,276	1,695	1,841	1,841	1,841	1,841	1,841	1,841	1,841	1,841	1,841
222	0	167	460	711	1,004	1,318	1,444	1,444	1,444	1,444	1,444	1,444	1,444	1,444	1,444
223	63	167	439	690	837	1,046	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
224	0	309	607	962	1,297	1,632	1,757	1,757	1,757	1,757	1,757	1,757	1,757	1,757	1,757
225	42	0	0	42	21	84	42	42	42	42	42	42	42	42	42
226	21	146	356	544	816	1,088	1,213	1,213	1,213	1,213	1,213	1,213	1,213	1,213	1,213
227	0	167	398	586	900	1,151	1,234	1,234	1,234	1,234	1,234	1,234	1,234	1,234	1,234
228	0	63	84	146	188	209	209	209	209	209	209	209	209	209	209
229	0	0	0	230	314	398	481	481	481	481	481	481	481	481	481
230	0	42	105	167	230	335	356	356	356	356	356	356	356	356	356
231	21	0	42	126	105	188	188	188	188	188	188	188	188	188	188
232	21	84	146	209	293	460	502	502	502	502	502	502	502	502	502

TABLE 3. (Continued)

AIR CABLE ANCH AND BEAM SIMULTANEOUS CASE 2 337002 1-18-71										SINGLE STRAIN GAGES			FINAL PRINT	
GAGE NUM	SCAN U33	SCAN U34	SCAN U35	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD	110	050	000											
PSI	000	080	000											
201	356	309	21											
202	481	146	84											
203	502	251	21											
204	230	105	21											
205	272	167	0											
206	1,234	607	21											
207	607	372	42											
208	398	167	63											
209	272	42	21											
210	377	293	63											
211	502	377	42											
212	439	230	167											
213	628	293	42											
214	290	146	0											
215	223	293	0											
216	1,339	733	126											
217	816	356	42											
218	921	460	21											
219	1,569	658	63											
220	1,234	670	84											
221	1,820	2,025	105											
222	1,469	711	188											
223	941	314	314											
224	1,674	679	109											
225	84	105	21											
226	1,297	711	0											
227	1,339	795	63											
228	230	146	63											
229	502	251	0											
230	418	251	42											
231	209	126	42											
232	439	251	84											

TABLE 3. (Continued)

RIM CABLE ARCH AND BEAM SIMULANEOUS CASE 2 337002 1-18-71										RECTANGULAR ROSETTES				FINAL PRINT	
CASE NUM	SCAN 021	SCAN 022	SCAN 023	SCAN 024	SCAN 025	SCAN 026	SCAN 027	SCAN 028	SCAN 029	SCAN 030	SCAN 031	SCAN 032	SCAN 033	SCAN 034	SCAN 035
PSI	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
301	443	572	791	1,175	1,511	1,715	1,928	2,054							
302	147	147	177	282	331	314	353	444							
303	71	213	307	456	590	700	772	805							
304	97	89	89	89	90	89	88	88							
305	112	127	204	285	376	419	347	282							
306	103	310	577	789	1,092	1,205	1,276	1,248							
307	44	92	186	250	358	393	463	483							
308	22	30	31	33	35	37	31	30							
309	199	478	744	1,057	1,480	1,644	1,848	1,887							
310	2	116	244	383	417	423	433	439							
311	96	181	291	412	559	614	692	716							
312	85	87	87	87	90	89	87	90							
313	74	29	80	14	72	89	116	123							
314	105	217	420	588	740	827	852	907							
315	90	123	170	267	334	389	366	392							
316	37	25	17	22	21	23	21	19							
317	45	907	1,366	1,954	2,471	2,720	3,001	3,168							
318	61	61	39	107	36	39	54	80							
319	401	423	663	923	1,207	1,331	1,513	1,544							
320	85	85	85	86	85	85	87	86							
321	54	54	163	280	341	371	442	387							
322	287	288	836	1,228	1,627	1,793	2,063	2,017							
323	231	231	336	494	643	691	792	815							
324	3	5	3	7	7	6	8	6							
325	814	814	1,315	1,861	2,431	2,627	2,979	3,095							
326	194	194	276	473	673	866	1,063	1,231							
327	130	330	519	752	979	1,066	1,168	1,237							
328	84	84	85	87	86	86	88	88							
329	42	138	239	280	429	491	482	497							
330	47	611	979	1,312	1,619	2,007	2,204	2,283							
331	115	236	370	516	695	758	861	893							
332	8	2	3	3	3	2	3	3							
333	35	126	283	323	575	628	681	608							
334	444	1,061	1,716	2,383	3,172	3,494	3,879	3,889							
335	195	468	716	1,020	1,298	1,433	1,599	1,641							
336	7	10	943	1,330	1,682	1,871	2,073	2,110							
337	286	616	943	1,330	1,682	1,871	2,073	2,110							
338	9	8	37	108	149	159	174	139							
339	118	304	443	612	756	856	950	985							
340	88	79	82	81	82	81	80	82							
341	34	185	226	415	635	625	726	785							
342	803	971	1,491	2,208	2,925	3,153	3,552	3,681							
343	184	393	632	897	1,145	1,264	1,413	1,448							
344	10	10	11	11	10	10	10	10							
345	313	675	1,070	1,502	1,866	2,068	2,247	2,363							
346	199	434	304	434	566	566	594	597							
347	110	238	383	534	679	741	827	833							
348	79	66	83	63	83	83	82	83							

TABLE 3. (Continued)

AIR CABLE ARCH AND BEAM SIMULTANEOUS CASE 2 337002 1-18-71										RECTANGULAR ROSETTES FINAL PRINT			
ROSE NO	SUM U33	SUM U34	SUM U35	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD													
PSI	110	000	000	000	000	000	000	000	000				
301	1,848	2,010							53				
302	800	332							9				
303	724	339							22				
304	89	88							23				
305	265	427							62				
306	1,109	444							281				
307	422	410							110				
308	32	39							79				
309	1,762	924							31				
310	899	463							31				
311	659	331							0				
312	89	89							49				
313	109	27							81				
314	890	411							19				
315	391	292							50				
316	20	17							94				
317	2,874	2,246							0				
318	93	77							63				
319	1,990	734							31				
320	89	32							42				
321	377	213							35				
322	1,840	442							35				
323	732	364							35				
324	8	7							28				
325	2,722	1,452							89				
326	899	409							121				
327	1,114	393							105				
328	87	83							39				
329	453	161							49				
330	2,049	1,025							18				
331	797	432							33				
332	3	3							22				
333	579	354							20				
334	3,637	1,325							207				
335	1,526	801							113				
336	9	10							73				
337	1,921	1,057							24				
338	140	99							118				
339	891	479							71				
340	81	43							42				
341	759	455							191				
342	3,420	1,301							121				
343	1,333	713							35				
344	10	11							77				
345	2,180	1,190							16				
346	831	372							49				
347	775	409							33				
348	84	90							22				

TABLE 3. (Continued)

AIN CABLE ARCH AND BEAM SIMULATIONS CASE 2 337002 1-18-71										RECTANGULAR ROSETTES FINAL PRINT									
GAGE NUM	SCAN 021	SCAN 022	SCAN 023	SCAN 024	SCAN 025	SCAN 026	SCAN 028	SCAN 029	SCAN 031	SCAN 032									
X LOAD PSI	000	000	040	060	080	100	110	120	125										
337	9	424	1,080	1,805	2,602	3,443	3,865	4,253	-	4,495									
338	40	825	1,980	3,234	4,674	6,175	6,908	7,707	-	8,089									
339	25	200	450	724	1,036	1,366	1,522	1,727	-	1,797									
340	36	67	72	73	74	74	74	74	-	74									
341	0	243	561	875	1,290	1,739	1,924	2,037	-	2,137									
342	0	67	187	251	447	740	738	1,163	-	1,138									
343	45	165	374	563	869	1,239	1,331	1,600	-	1,638									
344	58	258	56	98	58	59	59	60	-	61									
345	58	486	785	1,310	1,925	2,617	2,989	3,246	-	3,391									
346	36	682	1,682	2,656	3,915	5,283	6,004	6,621	-	6,914									
347	11	198	448	673	995	1,333	1,507	1,688	-	1,761									
348	23	3	8	7	9	9	9	9	-	9									
349	29	302	735	1,145	1,865	2,403	2,589	2,970	-	3,094									
350	40	42	108	136	259	313	343	434	-	468									
351	25	150	313	504	803	1,045	1,137	1,268	-	1,314									
352	81	77	76	75	73	73	73	74	-	74									
353	47	143	345	541	849	1,101	1,181	1,351	-	1,397									
354	78	16	30	53	88	148	131	179	-	164									
355	16	60	157	244	380	476	525	586	-	617									
356	45	84	90	89	86	86	86	84	-	87									
357	40	165	323	549	777	958	1,129	1,234	-	1,318									
358	0	9	42	49	58	84	68	79	-	7									
359	25	67	182	299	418	521	599	657	-	662									
360	0	87	86	88	88	87	88	87	-	88									
361	27	49	93	121	180	215	276	306	-	295									
362	4	118	62	89	117	153	182	212	-	232									
363	11	33	78	105	148	184	229	259	-	264									
364	67	22	22	6	16	10	11	10	-	9									
365	0	35	89	84	211	201	221	316	-	277									
366	0	35	89	116	86	138	159	160	-	215									
367	0	35	89	100	148	169	190	238	-	246									
368	45	13	22	22	16	11	12	17	-	19									

TABLE 3. (Concluded)

ATM CABLE ARCH AND BEAM STRUCTURAL CASE 2 337002 1-18-71										RECTANGULAR ROSETTES				FINAL PRINT	
PAGE NUM		SCAN 033	SCAN 034	SCAN 035	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD		110	000	000	000	000	000	000	000						
PSI		000	000	000	000	000	000	000	000						
337	-	4,110	-	2,210	-	40									
338	-	7,444	-	8,066	-	85									
339	-	1,667	-	928	-	22									
	-	74	-	74	-	67									
340	-	1,931	-	2,049	-	10									
341	-	1,150	-	893	-	521									
342	-	1,541	-	971	-	256									
	-	60	-	61	-	67									
343	-	3,113	-	1,403	-	105									
344	-	6,348	-	8,425	-	136									
345	-	1,617	-	911	-	120									
	-	8	-	8	-	6									
346	-	2,819	-	1,496	-	119									
347	-	428	-	422	-	6									
348	-	1,196	-	937	-	57									
	-	74	-	76	-	62									
349	-	1,277	-	950	-	0									
350	-	160	-	68	-	63									
351	-	559	-	491	-	31									
	-	85	-	89	-	45									
352	-	1,203	-	622	-	127									
353	-	48	-	28	-	2									
354	-	625	-	325	-	65									
	-	87	-	87	-	38									
355	-	285	-	122	-	15									
356	-	223	-	133	-	47									
357	-	254	-	138	-	16									
	-	11	-	15	-	45									
358	-	334	-	159	-	72									
359	-	146	-	65	-	22									
360	-	240	-	112	-	25									
	-	16	-	20	-	54									

TABLE 4. TEST DATA, LOAD CASE 3

ALN CABLE ARCH AND BEAM STRUCTURAL CASE 3 337003 1-19-71										
LOAD CELLS IN POUNDS										
GAUGE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 007	SCAN 008	SCAN 009	SCAN 011	FINAL PRINT
X LOAD	000	000	040	060	080	100	110	120	125	
PSI	000	000	000	000	000	000	000	000	000	
801	0	133	163	245	330	407	461	494	522	
802	0	0	1	0	1	0	0	1	1	
803	2	249	508	769	1,026	1,321	1,447	1,581	1,655	
804	0	16	27	43	56	75	80	87	92	
805	0	0	0	0	0	0	0	1	0	
806	0	0	0	0	0	0	0	0	0	
807	0	0	0	0	0	0	0	0	0	
808	0	129	295	390	520	696	724	791	838	
809	0	0	0	0	0	0	0	0	0	
810	1	64	140	220	297	395	433	473	493	

ALN CABLE ARCH AND BEAM STRUCTURAL CASE 3 337003 1-19-71										
LOAD CELLS IN POUNDS										
GAUGE NUM	SCAN 012	SCAN 013	SCAN 014	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD	110	080	000							
PSI	000	000	000							
801	489	474	0	8						
802	1	0	1							
803	1,483	803	0							
804	82	52	0							
805	0	0	0							
806	0	0	0							
807	0	0	0							
808	732	394	7							
809	0	0	0							
810	436	229	2							

TABLE 4. (Continued)

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 3 337003 1-19-71										DISPLACEMENT PUTS				FINAL PRINT			
GATE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 007	SCAN 008	SCAN 009	SCAN 011								
X LOAD	000	080	040	060	080	100	110	120	125								
PSI	000	080	000	000	000	000	000	000	000								
301	000000	000082	00082	00085	00082	00092	00094	00096	00092								
302	000000	00016	00132	00234	00319	00380	00415	00437	00459								
303	000000	000125	00133	00220	00290	00374	00409	00432	00464								
304	000004	000135	00149	00223	00285	00350	00386	00407	00428								
305	000000	000157	00167	00240	00314	00396	00433	00460	00484								
306	000000	000300	00430	00495	00560	00659	00687	00714	00748								
307	000000	000440	00440	00492	00542	00607	00631	00653	00678								
308	000002	000534	00430	00483	00512	00586	00615	00643	00675								
309	000002	000609	00012	00005	00019	00063	00060	00060	00063								
310	000000	000254	00271	00321	00362	00428	00450	00471	00488								
311	000000	000216	00216	00216	00216	00226	00226	00226	00226								
312	000000	000245	00264	00266	00314	00354	00368	00383	00401								
313	000004	000004	00007	00018	00018	00025	00025	00025	00018								
314	000006	000162	00196	00186	00213	002679	002924	003163	003326								
315	000000	000017	001234	001676	002133	002686	002906	003152	003310								
316	000009	000352	001255	001698	002159	002708	002924	003169	003324								
317	000000	000070	000085	000099	000097	000088	000085	000076	000064								
318	000003	000002	001383	002037	002708	003534	003881	004254	004488								
319	000000	000285	001304	001894	002488	003218	003518	003847	004049								
320	000000	000077	001466	002125	002790	003517	003953	004327	004556								
321	000006	000064	000073	000099	000122	000157	000160	000166	000143								
322	000003	000041	000050	000053	000079	000134	000194	000267	000310								
323	000002	000027	001198	001794	002397	003127	003436	003769	003971								
324	000004	000729	001265	001860	002459	003185	003491	003822	004026								
325	000004	000032	000035	000035	000035	000035	000032	000030	000025								
326	000000	000011	000014	000018	000025	000030	000036	000040	000040								
327	000000	000277	000550	000866	001175	001553	001715	001879	001976								
328	000002	000331	000648	000971	001293	001685	001850	002031	002138								
329	000002	000002	000002	000009	000012	000018	000026	000028	000030								

TABLE 4. (Continued)

A1M CABLE ARCH AND BEAM STRUCTURAL CASE 3 337003 1-19-71										DISPLACEMENT POIS		FINAL PRINT	
GAGE NUM	SCAN 012	SCAN 013	SCAN 014	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
W LOAD PSI	110 000	080 080	000 000										
201	0.0094	0.0085	-	0.0007									
202	-	0.0026	-	0.0017									
203	-	0.0453	-	0.0319	-	0.0020							
204	-	0.0418	-	0.0287	-	0.0014							
205	-	0.0471	-	0.0324	-	0.0024							
206	-	0.0768	-	0.0495	-	0.0318							
207	-	0.0700	-	0.0453	-	0.0310							
208	-	0.0579	-	0.0340	-	0.0313							
209	-	0.0070	-	0.0082	-	0.0063							
210	-	0.0493	-	0.0428	-	0.0177							
211	-	0.0265	-	0.0297	-	0.0148							
212	-	0.0415	-	0.0386	-	0.0152							
213	-	0.0018	-	0.0046	-	0.0021							
214	-	0.0304	-	0.0184	-	0.0534							
215	-	0.0340	-	0.0156	-	0.0515							
216	-	0.0370	-	0.0193	-	0.0522							
217	-	0.0076	-	0.0102	-	0.0012							
218	-	0.0091	-	0.0222	-	0.0446							
219	-	0.0393	-	0.0215	-	0.0408							
220	-	0.0338	-	0.0284	-	0.0415							
221	-	0.0166	-	0.0157	-	0.0035							
222	-	0.0109	-	0.0097	-	0.0024							
223	-	0.0302	-	0.0296	-	0.0319							
224	-	0.0346	-	0.0229	-	0.0303							
225	-	0.0027	-	0.0048	-	0.0021							
226	-	0.0040	-	0.0041	-	0.0018							
227	-	0.0300	-	0.0111	-	0.0092							
228	-	0.0192	-	0.0121	-	0.0107							
229	-	0.0044	-	0.0011	-	0.0002							

TABLE 4. (Continued)

A1M CABLE ARCH AND BEAM SIMULTANEOUS CASE 3 337003 1-19-71										SINGLE STRAIN GAGES				FINAL PRINT	
GAGE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 006	SCAN 007	SCAN 008	SCAN 009	SCAN 010	SCAN 011	SCAN 012	SCAN 013	SCAN 014	SCAN 015
X LOAD PSI	000 000	080 000	040 000	060 000	080 000	100 000	120 000	140 000	160 000	180 000	200 000	220 000	240 000	260 000	280 000
201	-	84	0	21	84	126	146	188	230	272					
202	-	0	126	84	42	63	84	42	126	84					
203	-	42	42	42	42	42	42	42	42	42					
204	-	0	84	63	126	209	251	293	335	377					
205	-	63	493	418	586	753	900	962	1,088	1,172					
206	-	0	409	398	523	628	816	837	955	921					
207	-	0	63	42	42	21	0	42	63	42					
208	-	63	188	231	251	314	356	335	398	439					
209	-	0	126	126	126	126	105	84	84	105					
210	-	21	251	293	335	398	398	418	460	523					
211	-	21	272	293	356	398	418	502	544	544					
212	-	0	146	167	146	167	167	209	126	167					
213	-	0	126	146	146	209	272	251	272	293					
214	-	0	0	0	21	84	84	105	63	167					
215	-	21	63	209	356	582	649	753	774	900					
216	-	63	21	105	209	293	418	481	460	523					
217	-	42	105	167	230	335	418	460	502	544					
218	-	21	42	146	188	272	251	314	398	418					
219	-	0	409	398	670	921	1,213	1,316	1,402	1,506					
220	-	0	167	293	502	585	670	753	837	941					
221	-	0	126	377	544	795	921	1,004	1,046	1,130					
222	-	21	146	314	523	690	879	1,025	1,096	1,087					
223	-	21	230	544	879	1,276	1,548	1,797	1,925	2,092					
224	-	63	493	505	837	1,214	1,574	1,841	1,988	2,134					
225	-	21	21	63	63	146	167	105	188	146					
226	-	63	42	146	293	460	628	711	816	837					
227	-	42	167	314	439	628	816	858	941	1,004					
228	-	0	63	21	146	188	272	314	335	335					
229	-	21	63	146	251	314	398	481	502	502					
230	-	21	0	84	146	209	293	251	377	377					
231	-	0	63	42	126	167	209	230	230	272					
232	-	42	0	105	188	251	377	377	418	460					

TABLE 4. (Continued)

ALM CABLE ARCH AND BEAM STRUCTURAL CASE 3 337003 1-19-71										SINGLE STRAIN GAGES				FINAL PRINT	
GAGE NUM	SCAN U12	SCAN U13	SCAN U14	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD PSI	110 000	060 000	000 000												
201	-	209	-	84	-	84	-	84	-	84	-	84	-	84	-
202	-	105	-	167	-	167	-	167	-	167	-	167	-	167	-
203	-	84	-	105	-	105	-	105	-	105	-	105	-	105	-
204	-	293	-	126	-	126	-	126	-	126	-	126	-	126	-
205	-	1,046	-	649	-	649	-	649	-	649	-	649	-	649	-
206	-	774	-	774	-	774	-	774	-	774	-	774	-	774	-
207	-	84	-	0	-	0	-	0	-	0	-	0	-	0	-
208	-	418	-	314	-	314	-	314	-	314	-	314	-	314	-
209	-	42	-	84	-	84	-	84	-	84	-	84	-	84	-
210	-	460	-	335	-	335	-	335	-	335	-	335	-	335	-
211	-	544	-	377	-	377	-	377	-	377	-	377	-	377	-
212	-	209	-	126	-	126	-	126	-	126	-	126	-	126	-
213	-	272	-	209	-	209	-	209	-	209	-	209	-	209	-
214	-	126	-	84	-	84	-	84	-	84	-	84	-	84	-
215	-	795	-	998	-	998	-	998	-	998	-	998	-	998	-
216	-	460	-	168	-	168	-	168	-	168	-	168	-	168	-
217	-	460	-	451	-	451	-	451	-	451	-	451	-	451	-
218	-	314	-	146	-	146	-	146	-	146	-	146	-	146	-
219	-	1,276	-	711	-	711	-	711	-	711	-	711	-	711	-
220	-	753	-	377	-	377	-	377	-	377	-	377	-	377	-
221	-	962	-	418	-	418	-	418	-	418	-	418	-	418	-
222	-	962	-	998	-	998	-	998	-	998	-	998	-	998	-
223	-	1,674	-	628	-	628	-	628	-	628	-	628	-	628	-
224	-	1,778	-	732	-	732	-	732	-	732	-	732	-	732	-
225	-	146	-	105	-	105	-	105	-	105	-	105	-	105	-
226	-	753	-	472	-	472	-	472	-	472	-	472	-	472	-
227	-	900	-	439	-	439	-	439	-	439	-	439	-	439	-
228	-	251	-	105	-	105	-	105	-	105	-	105	-	105	-
229	-	460	-	351	-	351	-	351	-	351	-	351	-	351	-
230	-	314	-	126	-	126	-	126	-	126	-	126	-	126	-
231	-	251	-	126	-	126	-	126	-	126	-	126	-	126	-
232	-	377	-	167	-	167	-	167	-	167	-	167	-	167	-

TABLE 4. (Continued)

AIR CABLE ARCH AND BEAM SIMULATIONAL CASE 3 J37003 1-19-71											
RECTANGULAR ROSETTES FINAL PRINT											
SAGE-NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 007	SCAN 008	SCAN 009	SCAN 011		
PSI	000	000	000	000	000	000	000	000	000	000	000
301	103	74	28	46	51	22	35	-	3	3	3
302	50	105	370	545	738	928	1,089	1,152	-	1,221	-
303	25	90	184	296	395	475	527	574	-	612	-
304	54	8	10	13	12	12	9	12	-	10	-
305	44	107	181	232	303	503	547	463	-	508	-
306	44	18	24	13	33	35	79	28	-	71	-
307	67	57	61	67	67	64	64	67	-	67	-
308	22	53	72	128	152	174	192	204	-	311	-
309	22	103	272	465	597	888	839	983	-	1,054	-
310	67	25	100	168	222	357	323	389	-	392	-
311	27	49	138	195	243	333	303	384	-	419	-
312	35	33	60	70	103	130	178	213	-	200	-
313	58	29	78	77	71	71	71	71	-	67	-
314	15	15	65	35	21	71	114	23	-	36	-
315	110	408	735	1,058	1,395	1,865	2,134	2,225	-	2,399	-
316	47	189	325	511	708	897	1,010	1,101	-	1,181	-
317	43	2	3	0	1	1	2	0	-	2	-
318	22	116	350	510	790	948	1,112	1,203	-	1,245	-
319	72	24	8	20	33	20	13	44	-	35	-
320	25	71	164	245	368	464	549	580	-	605	-
321	4	87	82	87	82	83	83	84	-	84	-
322	40	14	76	200	198	290	256	269	-	358	-
323	25	439	811	987	1,238	1,846	1,805	1,979	-	2,109	-
324	11	142	288	394	520	678	775	855	-	876	-
325	36	3	2	1	2	2	3	3	-	2	-
326	4	165	368	593	675	927	963	997	-	1,036	-
327	27	9	89	63	74	135	130	90	-	38	-
328	11	87	199	265	301	336	417	450	-	474	-
329	67	87	81	84	87	87	89	87	-	87	-
330	24	111	679	1,140	1,515	1,975	2,174	2,409	-	2,588	-
331	36	32	39	78	15	23	12	58	-	67	-
332	40	139	320	531	750	976	1,081	1,176	-	1,260	-
333	39	82	78	77	78	80	79	79	-	79	-
334	16	55	10	58	94	117	88	117	-	125	-
335	49	297	488	785	1,061	1,351	1,473	1,600	-	1,687	-
336	33	101	224	364	483	617	692	741	-	781	-
337	22	119	9	11	11	9	11	10	-	9	-
338	50	333	714	1,087	1,494	1,997	2,173	2,389	-	2,517	-
339	7	130	131	131	224	231	231	202	-	231	-
340	22	130	292	478	635	873	971	1,094	-	1,143	-
341	67	77	74	74	73	73	72	72	-	73	-
342	4	97	144	156	271	333	435	483	-	506	-
343	27	246	574	843	1,166	1,447	1,689	1,796	-	1,961	-
344	11	75	215	344	448	557	627	657	-	727	-
345	67	9	12	8	9	9	9	9	-	8	-

TABLE 4. (Continued)

AIR CABLE ARCH AND BEAM SINGULAR CASE 3 337003 1-19-71										RECTANGULAR ROSETTES			FINAL PRINT		
BASE NUM	SCAN 012	SCAN 013	SCAN 014	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD	110	000	000	000	000	000	000	000	000	000	000	000	000	000	000
PSI	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
801	-	33	-	65	-	66	-	66	-	66	-	66	-	66	-
802	-	1,092	-	32	-	32	-	32	-	32	-	32	-	32	-
803	-	564	-	300	-	35	-	35	-	35	-	35	-	35	-
804	-	11	-	12	-	32	-	32	-	32	-	32	-	32	-
805	-	365	-	176	-	44	-	44	-	44	-	44	-	44	-
806	-	84	-	41	-	44	-	44	-	44	-	44	-	44	-
807	-	225	-	113	-	44	-	44	-	44	-	44	-	44	-
808	-	72	-	73	-	67	-	67	-	67	-	67	-	67	-
809	-	210	-	90	-	63	-	63	-	63	-	63	-	63	-
810	-	949	-	145	-	0	-	0	-	0	-	0	-	0	-
811	-	368	-	145	-	31	-	31	-	31	-	31	-	31	-
812	-	21	-	2	-	45	-	45	-	45	-	45	-	45	-
813	-	350	-	155	-	9	-	9	-	9	-	9	-	9	-
814	-	7	-	38	-	40	-	40	-	40	-	40	-	40	-
815	-	178	-	101	-	25	-	25	-	25	-	25	-	25	-
816	-	69	-	11	-	9	-	9	-	9	-	9	-	9	-
817	-	6	-	19	-	13	-	13	-	13	-	13	-	13	-
818	-	2,053	-	1,127	-	112	-	112	-	112	-	112	-	112	-
819	-	1,023	-	559	-	50	-	50	-	50	-	50	-	50	-
820	-	0	-	1	-	9	-	9	-	9	-	9	-	9	-
821	-	1,109	-	81	-	49	-	49	-	49	-	49	-	49	-
822	-	19	-	18	-	18	-	18	-	18	-	18	-	18	-
823	-	563	-	128	-	33	-	33	-	33	-	33	-	33	-
824	-	82	-	82	-	67	-	67	-	67	-	67	-	67	-
825	-	304	-	135	-	9	-	9	-	9	-	9	-	9	-
826	-	1,819	-	177	-	40	-	40	-	40	-	40	-	40	-
827	-	758	-	156	-	25	-	25	-	25	-	25	-	25	-
828	-	2	-	3	-	36	-	36	-	36	-	36	-	36	-
829	-	948	-	233	-	40	-	40	-	40	-	40	-	40	-
830	-	83	-	49	-	9	-	9	-	9	-	9	-	9	-
831	-	433	-	42	-	25	-	25	-	25	-	25	-	25	-
832	-	89	-	36	-	81	-	81	-	81	-	81	-	81	-
833	-	2,251	-	2,412	-	6	-	6	-	6	-	6	-	6	-
834	-	28	-	37	-	119	-	119	-	119	-	119	-	119	-
835	-	1,112	-	587	-	57	-	57	-	57	-	57	-	57	-
836	-	79	-	180	-	62	-	62	-	62	-	62	-	62	-
837	-	120	-	50	-	40	-	40	-	40	-	40	-	40	-
838	-	1,573	-	399	-	9	-	9	-	9	-	9	-	9	-
839	-	677	-	124	-	25	-	25	-	25	-	25	-	25	-
840	-	10	-	7	-	36	-	36	-	36	-	36	-	36	-
841	-	2,262	-	2,411	-	53	-	53	-	53	-	53	-	53	-
842	-	268	-	135	-	9	-	9	-	9	-	9	-	9	-
843	-	997	-	324	-	22	-	22	-	22	-	22	-	22	-
844	-	73	-	4	-	67	-	67	-	67	-	67	-	67	-
845	-	456	-	135	-	0	-	0	-	0	-	0	-	0	-
846	-	1,730	-	135	-	63	-	63	-	63	-	63	-	63	-
847	-	637	-	135	-	31	-	31	-	31	-	31	-	31	-
848	-	8	-	6	-	0	-	0	-	0	-	0	-	0	-

TABLE 4. (Continued)

ALM CABLE ARCH AND BEAM STRUCTURAL CASE 3 337003 1-19-71												RECTANGULAR ROSETTES				FINAL PRINT	
GAGE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 006	SCAN 007	SCAN 008	SCAN 009	SCAN 010	SCAN 011						
X LOAD	000	080	040	060	080	000	100	110	120	125	000						
PSI	000	080	000	000	000	000	000	000	000	000	000						
337	103	862	1,888	2,881	3,905	5,116	5,678	6,233	6,546	6,546							
338	53	243	1,078	1,553	2,090	2,628	2,909	3,135	3,228	3,228							
339	25	159	405	664	907	1,244	1,384	1,549	1,659	1,659							
340	54	10	15	18	17	16	15	15	15	15							
341	40	21	117	180	155	115	44	16	-	78							
342	9	39	523	899	1,217	1,770	1,918	2,170	-	2,327							
343	25	130	320	540	686	942	981	1,093	-	1,124							
344	81	32	33	30	27	26	24	23	-	24							
345	49	672	1,498	2,391	3,183	4,184	4,570	4,981	-	5,255							
346	18	389	782	1,231	1,626	2,092	2,269	2,514	-	2,646							
347	33	142	358	580	779	1,046	1,150	1,233	-	1,305							
348	22	90	86	84	86	85	86	87	-	87							
349	9	58	165	239	339	400	476	536	-	566							
350	40	348	678	1,104	1,335	1,942	2,179	2,337	-	2,463							
351	25	145	257	433	598	771	852	901	-	948							
352	54	11	14	14	13	12	11	10	-	11							
353	50	22	61	68	91	120	72	57	-	120							
354	24	396	439	650	909	1,254	1,240	1,442	-	1,504							
355	40	87	189	291	409	567	584	692	-	692							
356	0	3	0	1	0	2	2	1	-	0							
357	80	18	20	30	48	101	138	154	-	128							
358	13	205	394	624	829	1,101	1,106	1,247	-	1,346							
359	33	111	207	327	438	601	622	700	-	737							
360	23	4	4	5	5	3	1	1	-	3							
361	30	9	15	12	83	125	46	142	-	136							
362	61	33	172	188	207	281	327	350	-	354							
363	46	22	79	90	145	203	186	236	-	245							
364	30	67	72	71	70	72	76	72	-	69							
365	9	9	21	2	111	111	148	116	-	90							
366	53	33	115	185	174	174	211	272	-	278							
367	22	22	68	92	142	142	179	194	-	184							
368	22	67	72	75	87	87	82	79	-	80							

TABLE 4. (Concluded)

ATM CABLE ARCH AND BEAM SIMULTANEOUS CASE 3 337003 1-19-71										RECTANGULAR ROSETTES			FINAL PRINT		
CASE NUM	SCAN U12	SCAN U13	SCAN U14	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD	110	000	000	000											
PSI	000	000	000	000											
337	5,815	8,909	265												
338	2,772	2,755	16												
339	1,522	885	124												
340	16	15	9												
341	39	124	201												
342	2,116	2,450	268												
343	1,038	563	33												
344	25	27	67												
345	8,715	8,915	134												
346	2,342	2,350	84												
347	1,187	932	25												
348	87	85	36												
349	472	276	13												
350	2,185	2,423	80												
351	856	473	33												
352	9	11	23												
353	152	76	66												
354	1,347	736	4												
355	598	550	35												
356	0	0	32												
357	171	65	40												
358	1,139	927	9												
359	652	1,46	25												
360	2	1	36												
361	156	76	27												
362	312	169	98												
363	234	122	35												
364	67	67	58												
365	102	89	9												
366	256	151	53												
367	180	120	22												
368	78	78	67												



TABLE 5. (Continued)

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 4 337004 1-20-71										SINGLE STRAIN GAGES				FINAL PRINT	
GAGE NUM	SCAN U14	SCAN U15	SCAN U16	SCAN U17	SCAN U18	SCAN U20	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	000	000	040	060	080	098									
PSI	000	000	000	000	000	000									
201	-	42	-	167	-	209	-	251	-	293	-	146			
202	0	-	430	-	439	-	689	-	837	-	63				
203	21	272	460	649	649	84									
204	0	126	167	251	251	84									
205	42	114	502	690	690	84									
206	0	209	188	126	126	42									
207	0	230	335	-	460	-	63								
208	-	42	-	753	-	1,023	-	1,360	-	146					
209	21	230	377	-	481	-	42								
210	0	-	472	-	586	-	711	-	858	-	230				
211	-	42	272	460	690	-	251								
212	-	21	272	439	544	-	293								
213	-	21	251	523	795	-	230								
214	-	21	251	481	670	-	42								
215	21	-	188	-	293	-	84								
216	42	-	187	-	251	-	293								
217	0	0	21	63	146	-	230								
218	0	0	42	42	64	-	209								
219	0	0	126	377	607	-	795								
220	21	0	84	230	377	-	670								
221	0	0	126	314	398	-	418								
222	0	0	21	21	84	-	105								
223	42	0	105	209	272	-	272								
224	0	0	21	42	84	-	335								
225	21	0	105	335	418	-	335								
226	0	0	209	649	1,193	-	398								
227	0	0	293	649	837	-	251								
228	0	0	63	293	795	-	481								
229	42	0	146	314	481	-	502								
230	-	21	0	21	0	-	126								
231	-	42	42	63	0	-	544								
232	42	0	396	795	1,213	-	314								

TABLE 5. (Continued)

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 4 337004 1-20-71														RECTANGULAR ROSETTES FINAL PRINT			
GAGE NUM	SCAN 014		SCAN 015		SCAN 016		SCAN 017		SCAN 018		SCAN 020		SCAN				
	800 PSI	800 000	800 000	800 000	800 000	800 000	800 000	800 000	800 000	800 000	800 000	800 000	800 000				
801	-	4	00	40	38	189	-	256									
802	-	65	377	727	1,225	1,733	-	2,887									
803	-	35	158	383	632	921	-	1,306									
804	-	32	87	80	81	-	79										
805	-	27	64	283	464	742	-	1,255									
806	-	11	66	174	323	414	-	599									
807	-	67	30	36	38	26	-	30									
808	-	31	302	648	1,032	1,477	-	2,272									
809	-	94	73	71	155	241	-	8									
810	-	42	0	9	11	11	-	1,132									
811	-	16	9	9	29	13	-	11									
812	-	16	93	183	383	419	-	642									
813	-	43	31	87	158	216	-	376									
814	-	4	99	48	58	30	-	58									
815	-	60	99	338	575	919	-	692									
816	-	32	99	151	231	293	-	734									
817	-	35	99	244	403	607	-	723									
818	-	81	81	83	81	82	-	88									
819	-	40	11	116	113	210	-	439									
820	-	27	93	232	319	709	-	814									
821	-	25	95	194	316	459	-	626									
822	-	81	33	29	28	26	-	31									
823	-	15	21	104	219	341	-	371									
824	-	47	123	136	343	477	-	1,121									
825	-	16	68	151	281	419	-	746									
826	-	90	27	31	32	33	-	28									
827	-	31	76	141	232	294	-	962									
828	-	31	44	131	232	388	-	359									
829	-	0	60	141	232	341	-	666									
830	-	42	37	38	39	38	-	63									
831	-	40	126	185	316	576	-	384									
832	-	26	9	216	420	420	-	272									
833	-	25	94	201	318	498	-	56									
834	-	36	0	6	11	11	-	41									
835	-	47	79	137	56	136	-	18									
836	-	47	43	74	189	167	-	107									
837	-	47	44	106	183	151	-	44									
838	-	45	67	58	74	59	-	22									
839	-	9	74	183	217	230	-	93									
840	-	40	209	234	308	320	-	186									
841	-	23	16	35	96	145	-	139									
842	-	34	0	32	30	31	-	82									
843	-	155	232	324	364	489	-	85									
844	-	63	60	113	103	196	-	83									
845	-	63	60	106	130	145	-	85									
846	-	60	60	77	77	84	-	11									

TABLE 5. (Concluded)

ATM CABLE ARCH AND BEAM STRUCTURAL CASE 4 337004 1-20-71										RECTANGULAR ROSETTES			FINAL PRINT	
GAGE NUM	SCAN U14	SCAN U15	SCAN U16	SCAN U17	SCAN U18	SCAN U20	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	
X LOAD	000	020	040	060	080	098								
PSI	000	000	000	000	000	000								
337	27	4	-	40	-	56	-	147	-	140				
338	4	65	-	65	-	67	-	53	-	640				
339	11	35	22	22	71	71	-	100	-	250				
	67	77	-	22	-	42	-	22	-	84				
340	16	63	232	232	328	328	-	372	-	136				
341	16	52	-	107	-	172	-	216	-	167				
342	16	68	169	169	250	250	-	294	-	151				
	42	53	-	26	-	37	-	55	-	41				
343	22	16	-	114	-	134	-	271	-	766				
344	22	138	-	355	-	522	-	790	-	264				
345	22	60	120	120	194	194	-	259	-	251				
	67	12	6	6	11	11	-	7	-	74				
346	22	93	294	294	493	493	-	752	-	12				
347	72	62	-	45	-	23	-	34	-	199				
348	25	78	169	169	259	259	-	393	-	106				
	81	67	-	56	-	55	-	55	-	32				
349	22	10	-	131	-	138	-	297	-	941				
350	72	146	-	462	-	674	-	1,014	-	151				
351	25	68	165	165	268	268	-	359	-	395				
	54	18	-	13	-	20	-	19	-	84				
352	121	141	-	408	-	717	-	1,046	-	199				
353	26	16	29	29	2	2	-	16	-	800				
354	75	79	189	189	358	358	-	515	-	301				
	54	63	-	69	-	70	-	74	-	3				
355	40	79	127	127	193	193	-	293	-	136				
356	71	79	-	127	-	131	-	137	-	229				
357	56	79	127	127	162	162	-	215	-	182				
	4	16	-	30	-	30	-	33	-	4				
358	90	14	221	221	269	269	-	385	-	448				
359	59	76	-	158	-	300	-	448	-	417				
360	75	60	189	189	284	284	-	416	-	433				
	36	27	-	47	-	52	-	50	-	59				

TABLE 6. TEST DATA, LOAD CASE 4, SECOND RUN

ALM CABLE ARCH AND BEAM SIMULATIONAL CASE 4 337009 1-28-71											
BASE NUM		SCAN U02		SCAN U03	SCAN U04	SCAN U06	SCAN U07	SCAN U09	SCAN U10	SCAN U11	SCAN
X LOAD											
PS1	000	000	000	040	060	080	100	110	000	000	000
	000	000	000	000	000	000	000	000	000	000	000
001	-	0	68	-	234	-	320	-	435	-	240
002	0	0	40	514	779	1,039	1,315	1,438	-	-	4
003	0	0	4	-	1	2	1	-	-	-	1
004	0	0	18	29	47	62	79	85	-	-	11
005	1	57	-	119	-	251	317	345	-	-	114
006	77	163	77	163	281	338	455	486	7	0	0
007	-	25	25	63	121	166	212	229	0	0	0
008	0	0	0	0	0	0	0	0	0	0	0
009	-	0	56	124	233	312	347	374	517	1	1
010	-	0	0	0	0	0	2	1	-	-	1

[illegible]

TABLE 6. (Continued)

AIM CABLE ARCH AND BEAM SIMULATIONAL CASE 4 337009 1-28-71												
GAGE NUM	SCAN 002	SCAN 003	SCAN 004	SCAN 006	SCAN 007	SCAN 009	SCAN 010	SCAN 011	FINAL PRINT			
% LOAD	000	020	040	060	080	100	110	000				
PSI	000	000	000	000	000	000	000	000				
201	0	126	146	230	335	377	398	-	21	-	-	-
202	63	314	418	649	900	1,130	1,193	-	84	-	-	-
203	0	209	398	649	816	1,004	1,088	-	146	-	-	-
204	21	126	230	272	293	356	398	-	42	-	-	-
205	21	251	398	565	753	879	1,004	-	146	-	-	-
206	42	42	0	0	0	42	21	-	0	-	-	-
207	63	63	293	377	460	628	649	-	103	-	-	-
208	21	314	628	962	1,297	1,611	1,778	-	167	-	-	-
209	42	330	356	481	628	732	816	-	146	-	-	-
210	42	409	377	502	670	858	941	-	209	-	-	-
211	0	472	502	690	858	1,130	1,151	-	186	-	-	-
212	21	188	293	230	356	377	439	-	377	-	-	-
213	42	398	586	879	1,109	1,360	1,465	-	377	-	-	-
214	0	335	565	795	1,004	1,130	1,318	-	42	-	-	-
215	21	188	293	418	460	607	586	-	42	-	-	-
216	42	472	377	544	607	732	711	-	335	-	-	-
217	0	63	21	63	105	167	209	-	21	-	-	-
218	21	63	63	21	42	42	42	-	42	-	-	-
219	21	146	230	356	418	690	711	-	439	-	-	-
220	21	105	188	272	356	481	565	-	690	-	-	-
221	42	188	209	398	565	774	816	-	105	-	-	-
222	84	42	63	63	105	84	105	-	230	-	-	-
223	0	126	230	356	439	628	690	-	209	-	-	-
224	21	42	126	167	335	418	502	-	670	-	-	-
225	21	0	105	42	167	188	42	-	63	-	-	-
226	63	477	795	1,339	1,737	2,197	2,385	-	1,402	-	-	-
227	42	209	439	837	1,172	1,276	1,318	-	565	-	-	-
228	0	251	565	1,088	1,444	2,092	2,385	-	774	-	-	-
229	0	105	251	272	398	335	314	-	162,481	-	-	-
230	21	63	84	146	146	84	84	-	670	-	-	-
231	21	21	21	42	167	272	314	-	795	-	-	-
232	84	167	586	962	1,318	1,799	2,009	-	84	-	-	-

TABLE 6. (Continued)

MAIN CABLE ANCHOR AND BEAM STRUCTURAL CASE 4 337009 1-28-71										RECTANGULAR ROSETTES				FINAL POINT	
BASE NUM	SCAN U02	SCAN U03	SCAN U04	SCAN U06	SCAN U07	SCAN U09	SCAN U10	SCAN U11	SCAN						
X LOAD	000	020	040	060	080	100	110	000							
PSI	000	000	000	000	000	000	000	000							
.801	81	71	149	185	145	267	295	-	157						
.802	-	19	274	-	614	-	1,338	-	2,466						
.803	50	133	211	310	380	642	716	-	1,155						
.804	-	39	-	77	-	83	-	81	-	81					
.804	22	57	98	202	313	441	503	-	1,085						
.805	-	22	-	36	-	157	-	222	199						
.806	22	81	67	124	235	317	362	-	445						
.807	22	30	22	28	25	32	31	-	23						
.808	9	412	329	510	635	970	1,100	-	1,983						
.809	-	102	7	245	145	248	274	-	141						
.809	56	103	110	182	245	361	413	-	1,062						
.810	41	2	0	-	3	-	9	-	11						
.810	16	22	22	67	60	145	95	-	162						
.811	-	196	-	245	-	386	-	374	-	537					
.812	47	87	56	89	96	120	139	-	349						
.813	45	48	22	22	40	39	63	-	37						
.814	58	174	274	500	604	913	953	-	329						
.815	36	13	7	31	11	7	48	-	828						
.815	11	60	134	235	308	460	501	-	578						
.816	-	34	-	88	-	88	-	86	-	67					
.816	27	49	56	61	54	87	59	-	430						
.817	4	-	111	-	249	-	524	-	621						
.818	11	80	103	155	194	305	340	-	384						
.819	22	39	29	33	29	28	28	-	31						
.819	0	16	49	92	130	145	267	-	401						
.820	-	61	-	18	-	92	-	235	-	1,026					
.821	31	47	33	92	130	176	251	-	713						
.822	45	-	22	30	38	32	29	-	24						
.822	40	24	15	29	7	25	82	-	945						
.823	-	56	-	221	-	274	-	426	-	415					
.823	25	40	79	96	134	209	254	-	680						
.825	-	54	45	50	47	55	53	-	69						
.825	16	87	188	297	342	451	469	-	344						
.826	-	16	-	390	-	623	-	875	-	939					
.827	16	113	219	343	483	608	672	-	641						
.828	-	45	-	11	-	11	-	13	-	48					
.828	9	94	57	96	160	96	122	-	738						
.829	-	40	-	32	158	127	153	-	239						
.830	25	63	57	127	145	112	138	-	488						
.831	-	9	-	45	-	65	-	75	44						
.832	-	15	-	69	-	216	-	193	725						
.832	-	112	-	499	-	783	-	838	-	600					
.833	50	40	90	126	120	283	323	-	682						
.834	36	-	6	45	-	39	-	46	-	43					
.834	93	109	222	385	467	591	634	-	546						
.835	1	78	60	114	157	190	196	-	939						
.836	46	16	81	135	155	201	244	-	592						
.836	-	12	45	-	78	-	89	-	48						

TABLE 6. (Concluded)

AIM CABLE ARCH AND BEAM SIMULATIONAL CASE 4 337009 1-28-71												RECTANGULAR ROSETTES				FINAL PRINT	
GAGE NUM	SCAN 002	SCAN 003	SCAN 004	SCAN 006	SCAN 007	SCAN 009	SCAN 010	SCAN 011	SCAN								
% LOAD	000	020	040	060	080	100	110	000									
PSI	000	000	000	000	000	000	000	000									
337	-	7	40	134	261	299	358	304	-	351							
338	-	87	9	22	82	76	17	54	-	2,304							
339	-	40	25	56	90	111	170	179	-	977							
340	-	51	9	23	19	22	28	26	-	60							
341	-	53	42	18	193	132	112	60	-	396							
342	-	22	130	267	1,118	1,336	1,824	1,813	-	3,425							
343	-	67	77	142	463	602	856	876	-	1,910							
344	-	40	45	87	81	81	80	79	-	59							
345	-	71	111	65	207	334	350	344	-	1,699							
346	-	56	33	341	636	915	1,117	1,186	-	13							
347	-	67	22	138	215	290	384	421	-	856							
348	-	22	22	15	12	6	14	16	-	61							
349	-	22	199	311	572	830	1,152	1,223	-	511							
350	-	25	20	32	53	44	97	89	-	886							
351	-	54	53	139	259	393	527	567	-	699							
352	-	0	157	53	52	53	54	55	-	41							
353	-	63	449	165	437	428	664	669	-	2,605							
354	-	31	46	553	1,000	1,196	1,522	1,485	-	206							
355	-	90	15	194	281	384	429	408	-	1,199							
356	-	58	445	16	13	17	14	17	-	82							
357	-	36	92	558	947	1,344	1,669	1,703	-	794							
358	-	11	127	66	21	124	111	108	-	2,516							
359	-	23	75	246	463	610	779	797	-	861							
360	-	47	18	77	80	75	78	79	-	2							
361	-	15	49	141	228	247	193	203	-	495							
362	-	16	33	16	72	122	99	109	-	402							
363	-	0	22	79	150	184	146	156	-	448							
364	-	22	35	45	43	35	27	25	-	8							
365	-	22	35	4	59	134	120	222	-	509							
366	-	72	35	27	90	103	214	222	-	790							
367	-	25	35	11	75	118	167	222	-	650							
368	-	9	13	22	36	47	49	49	-	64							

TABLE 7. TEST DATA, LOAD CASE 4, FINAL RUN

AIM CABLE ARCH AND BEAM SIMULTANEOUS CASE 4 337010 2-5-71											
GAGE NUM		SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 006	SCAN 008	SCAN 010	SCAN 012	SCAN 014	FINAL PRINT
X LOAD		000	000	040	060	080	100	110	120	125	
PSI		000	000	000	000	000	000	000	000	000	
001	-	2	56	124	213	311	403	449	479	504	
002	-	0	467	529	793	1,052	1,320	1,446	1,578	1,643	
003	-	1	1	0	2	0	1	3	1	0	
004	-	0	14	29	45	63	79	87	101	102	
005	-	0	58	122	186	251	316	346	382	393	
006	1	89	182	271	365	455	498	542	565	565	
007	-	0	35	78	123	169	215	235	259	270	
008	0	0	0	0	0	0	0	0	1	1	
009	0	0	67	159	231	305	348	432	466	494	

AIM CABLE ARCH AND BEAM SIMULTANEOUS CASE 4 337010 2-5-71											
GAGE NUM		SCAN 015	SCAN 016	SCAN 017	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	FINAL PRINT
X LOAD		110	040	000							
PSI		000	000	000							
801	-	477	461	39							
802	-	1,456	798	12							
803	-	1	1	0							
804	-	98	59	13							
805	-	351	192	12							
806	-	509	490	17							
807	-	248	146	15							
808	0	0	0	1							
809	442	457	13								

TABLE 7. (Continued)

AIM CABLE ARCH AND BEAM STRUCTURAL CASE 4 337010 2-5-71													
DISPLACEMENT POIS										FINAL PRINT			
GATE NUM	SCAN U01	SCAN U02	SCAN U03	SCAN U04	SCAN U06	SCAN U08	SCAN U10	SCAN U12	SCAN U14				
% LOAD PSI	000 000	020 000	040 000	060 000	080 000	100 000	110 000	120 000	125 000				
101	0.0002	0.0284	0.0499	0.0714	0.0922	0.1187	0.1250	0.1404	0.1431				
102	0.0003	0.0151	0.0255	0.0372	0.0504	0.0639	0.0694	0.0815	0.0839				
103	0.0006	0.0090	0.0203	0.0322	0.0467	0.0618	0.0682	0.0818	0.0844				
104	0.0002	0.0071	0.0149	0.0241	0.0340	0.0453	0.0496	0.0605	0.0619				
105	0.0003	0.0073	0.0152	0.0247	0.0348	0.0455	0.0503	0.0629	0.0643				
106	0.0002	0.0090	0.0203	0.0322	0.0467	0.0618	0.0682	0.0818	0.0844				
107	0.0003	0.0073	0.0152	0.0247	0.0348	0.0455	0.0503	0.0629	0.0643				
108	0.0000	0.0231	0.0352	0.0462	0.0583	0.0709	0.0757	0.0901	0.0885				
109	0.0002	0.0140	0.0259	0.0372	0.0499	0.0639	0.0694	0.0815	0.0839				
110	0.0000	0.0375	0.0757	0.0967	0.1307	0.1718	0.1921	0.2242	0.2354				
111	0.0002	0.0212	0.0357	0.0511	0.0686	0.0907	0.0997	0.1184	0.1225				
112	0.0000	0.0060	0.0052	0.0050	0.0072	0.0085	0.0081	0.0121	0.0092				
113	0.0004	0.0134	0.0207	0.0302	0.0414	0.0463	0.0615	0.0713	0.0758				
114	0.0000	0.0368	0.0642	0.0899	0.1182	0.1506	0.1681	0.1923	0.2054				
115	0.0004	0.0137	0.0145	0.0130	0.0095	0.0035	0.0011	0.0026	0.0035				
116	0.0000	0.0020	0.0207	0.0411	0.0671	0.1001	0.1182	0.1418	0.1532				
117	0.0006	0.0183	0.0217	0.0239	0.0457	0.0564	0.0684	0.0755	0.0829				
118	0.0006	0.0341	0.0624	0.0881	0.1191	0.1564	0.1762	0.2002	0.2142				
119	0.0004	0.0113	0.0128	0.0131	0.0124	0.0138	0.0138	0.0096	0.0099				
120	0.0003	0.0065	0.0262	0.0474	0.0724	0.1004	0.1139	0.1374	0.1460				
121	0.0006	0.0273	0.1386	0.2056	0.2833	0.3744	0.4271	0.4970	0.5308				
122	0.0000	0.0270	0.0964	0.1445	0.1994	0.2649	0.3021	0.3524	0.3763				
123	0.0004	0.0262	0.0472	0.0688	0.0959	0.1285	0.1457	0.1700	0.1835				
124	0.0002	0.0069	0.0252	0.0439	0.0664	0.0946	0.1076	0.1272	0.1354				
125	0.0002	0.0086	0.0252	0.0439	0.0664	0.0946	0.1076	0.1272	0.1354				
126	0.0004	0.0105	0.0234	0.0368	0.0525	0.0751	0.0851	0.1051	0.1051				
127	0.0000	0.0135	0.0231	0.0355	0.0569	0.0856	0.1008	0.1249	0.1389				
128	0.0004	0.0023	0.0097	0.0168	0.0254	0.0380	0.0426	0.0526	0.0561				
129	0.0002	0.0132	0.0284	0.0426	0.0597	0.0800	0.0913	0.1068	0.1150				

TABLE 7. (Continued)

AIM CABLE ARCH AND BEAM SIMULTANEOUS CASE 4 337010 2-5-71									
BASE NUM		SCAN U15	SCAN U16	SCAN U17	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD		110	000	000	000	000	000	000	000
PSI		000	000	000	000	000	000	000	000
101		0.1396	0.0939	0.0282					
102	-	0.0802	-	0.0526	-	0.0140			
103	-	0.0809	-	0.0511	-	0.0151			
104	-	0.0605	-	0.0396	-	0.0136			
105	-	0.0619	-	0.0401	-	0.0128			
106	-	0.2713	-	0.1932	-	0.0735			
107	-	0.1622	-	0.1136	-	0.0501			
108	-	0.0858	-	0.0574	-	0.0346			
109	-	0.2123	-	0.3732	-	0.1290			
110	-	0.2267	-	0.1610	-	0.0595			
111	-	0.1184	-	0.0831	-	0.0366			
112	-	0.0087	-	0.0031	-	0.0114			
113	-	0.7417	-	0.5973	-	0.1744			
114	-	0.2025	-	0.1952	-	0.0674			
115	-	0.0011	-	0.0403	-	0.0247			
116	-	0.1453	-	0.0937	-	0.0070			
117	-	0.8027	-	0.2782	-	0.1841			
118	-	0.2089	-	0.1954	-	0.0616			
119	-	0.0113	-	0.0462	-	0.0209			
120	-	0.1398	-	0.0824	-	0.0088			
121	-	0.5159	-	0.3730	-	0.1205			
122	-	0.3668	-	0.2660	-	0.0868			
123	-	0.1791	-	0.1390	-	0.0557			
124	-	0.1309	-	0.0858	-	0.0181			
125	-	0.3655	-	0.2635	-	0.0868			
126	-	2.0351	-	2.0351	-	2.0351			
127	-	0.1341	-	0.1042	-	0.0500			
128	-	0.0561	-	0.0433	-	0.0193			
129	-	0.1114	-	0.0766	-	0.0249			

TABLE 7. (Continued)

ALM CABLE ARCH AND BEAM SIMULTANEOUS CASE 4 337010 2-5-71										SINGLE STRAIN GAGES				FINAL PRINT	
GAGE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 006	SCAN 008	SCAN 010	SCAN 012	SCAN 014						
% LOAD	000	080	040	060	080	100	110	120	125						
PSI	000	000	000	000	000	000	000	000	000						
201	0	146	209	293	377	460	523	481	523						
202	0	409	439	670	816	1,088	1,172	1,255	1,318						
203	42	167	377	607	774	1,004	1,088	1,130	1,193						
204	42	146	209	272	314	418	418	398	418						
205	42	351	418	586	795	941	1,046	1,067	1,109						
206	21	63	84	42	21	42	42	21	0						
207	63	430	335	502	628	711	774	858	837						
208	42	114	670	983	1,276	1,653	1,778	1,946	2,029						
209	42	272	418	481	607	774	774	837	900						
210	42	314	481	649	816	1,004	1,067	1,193	1,172						
211	21	314	460	670	879	1,046	1,088	1,234	1,255						
212	21	146	272	377	377	84	42	0	21						
213	0	356	586	858	1,109	1,402	1,506	1,611	1,695						
214	21	439	628	837	1,025	1,255	1,381	1,465	1,506						
215	0	251	335	418	502	586	628	670	670						
216	0	351	377	460	628	690	774	816	837						
217	42	84	21	42	84	188	188	272	272						
218	0	0	0	0	0	0	0	0	0						
219	0	63	209	335	460	586	670	795	816						
220	0	84	126	209	335	418	502	586	565						
221	42	105	251	377	460	502	586	649	690						
222	42	21	42	63	126	105	126	167	209						
223	0	63	167	293	460	544	628	711	711						
224	84	63	63	105	230	335	293	272	335						
225	42	42	209	377	586	900	983	1,172	1,276						
226	21	314	1,109	1,548	2,029	2,322	2,657	2,887	2,971						
227	21	398	879	1,318	1,716	2,218	2,511	2,783	2,971						
228	21	188	398	607	816	941	1,004	1,109	1,109						
229	42	42	209	293	418	481	544	523	586						
230	0	209	335	377	398	335	377	293	272						
231	21	126	377	460	628	670	711	795	795						
232	21	167	272	460	753	1,004	1,172	1,339	1,402						

TABLE 7. (Continued)

ALM CABLE ARCH AND BEAM SIMULATIONAL CASE 4 337010 2-5-71										SINGLE STRAIN GAGES		FINAL PRINT	
GAGE NUM	SCAN 015	SCAN 016	SCAN 017	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	110 000	000 000	000 000										
201	-	418	-	293	0								
202	-	1,213	-	690	0								
203	-	1,088	-	628	0								
204	-	377	-	230	84								
205	-	1,004	-	202	21								
206	-	63	-	84	126								
207	-	753	-	335	0								
208	-	1,820	-	341	21								
209	-	837	-	565	0								
210	-	1,172	-	711	146								
211	-	1,213	-	732	63								
212	-	63	-	356	879								
213	-	1,527	-	616	84								
214	-	1,318	-	705	84								
215	-	607	-	356	0								
216	-	774	-	460	105								
217	-	356	-	472	0								
218	-	63	-	146	105								
219	-	616	-	418	0								
220	-	628	-	460	209								
221	-	586	-	451	209								
222	-	167	-	126	63								
223	-	690	-	398	63								
224	-	272	-	430	0								
225	-	1,234	-	679	209								
226	-	2,741	-	1,227	42								
227	-	2,804	-	1,883	146								
228	-	1,025	-	377	272								
229	-	502	-	335	63								
230	-	272	-	493	126								
231	-	795	-	628	21								
232	-	1,339	-	607	21								

TABLE 7. (Continued)

AIR CABLE ARCH AND BEAM SUBSTRUCTURAL CASE 4 337010 2-5-71												RECTANGULAR ROSETTES				FINAL PRINT			
LINE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 006	SCAN 008	SCAN 010	SCAN 012	SCAN 014	SCAN 016	SCAN 018	SCAN 020	SCAN 022	SCAN 024	SCAN 026	SCAN 028	SCAN 030	SCAN 032	SCAN 034
X LOAD PSI	000	000	040	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
.801	63	-	69	-	11	144	202	265	252	308	278								
.802	-	63	-	212	-	394	-	577	-	765	-	939	-	1,119	-	1,184	-	1,184	-
.803	-	63	-	151	-	269	-	389	-	515	-	595	-	713	-	731	-	731	-
.804	-	43	-	86	-	80	-	84	-	84	-	84	-	84	-	84	-	84	-
.805	31	98	-	163	-	190	-	256	-	522	-	584	-	591	-	650	-	650	-
.806	0	35	-	101	-	112	-	146	-	257	-	303	-	326	-	369	-	369	-
.807	45	13	-	19	-	25	-	14	-	14	-	20	-	20	-	20	-	20	-
.808	184	330	-	333	-	502	-	715	-	871	-	1,019	-	1,115	-	1,208	-	1,208	-
.809	35	51	-	104	-	122	-	222	-	253	-	262	-	259	-	291	-	291	-
.810	75	90	-	115	-	190	-	246	-	309	-	378	-	428	-	458	-	458	-
.811	-	30	-	19	-	12	-	13	-	7	-	10	-	10	-	8	-	8	-
.812	-	40	-	4	-	46	-	33	-	88	-	99	-	161	-	96	-	96	-
.813	-	85	-	27	-	204	-	217	-	287	-	338	-	401	-	435	-	435	-
.814	-	22	-	11	-	79	-	92	-	99	-	120	-	120	-	170	-	170	-
.815	67	67	-	67	-	45	-	30	-	36	-	33	-	33	-	39	-	39	-
.816	81	81	-	223	-	420	-	517	-	800	-	879	-	971	-	1,035	-	1,035	-
.817	19	19	-	36	-	74	-	18	-	12	-	4	-	37	-	36	-	36	-
.818	50	50	-	130	-	176	-	267	-	394	-	442	-	506	-	536	-	536	-
.819	-	36	-	81	-	85	-	90	-	89	-	88	-	88	-	88	-	88	-
.820	-	53	-	21	-	19	-	36	-	55	-	46	-	52	-	33	-	33	-
.821	9	88	-	115	-	300	-	348	-	524	-	577	-	708	-	751	-	751	-
.822	22	57	-	68	-	159	-	192	-	289	-	312	-	380	-	392	-	392	-
.823	-	23	-	27	-	29	-	28	-	24	-	24	-	25	-	26	-	26	-
.824	-	30	-	31	-	49	-	130	-	236	-	245	-	234	-	312	-	312	-
.825	-	61	-	81	-	111	-	130	-	174	-	214	-	266	-	281	-	281	-
.826	-	46	-	50	-	80	-	130	-	205	-	229	-	250	-	296	-	296	-
.827	-	60	-	36	-	51	-	38	-	43	-	42	-	39	-	40	-	40	-
.828	-	7	-	39	-	17	-	32	-	17	-	16	-	43	-	21	-	21	-
.829	-	87	-	102	-	252	-	311	-	326	-	422	-	551	-	479	-	479	-
.830	-	40	-	70	-	127	-	139	-	155	-	219	-	254	-	229	-	229	-
.831	-	51	-	58	-	49	-	53	-	52	-	52	-	53	-	50	-	50	-
.832	-	49	-	191	-	266	-	408	-	678	-	769	-	807	-	878	-	878	-
.833	-	19	-	254	-	391	-	470	-	615	-	644	-	745	-	784	-	784	-
.834	-	33	-	222	-	328	-	439	-	647	-	707	-	776	-	831	-	831	-
.835	-	67	-	4	-	8	-	7	-	9	-	8	-	9	-	9	-	9	-
.836	-	15	-	3	-	65	-	61	-	81	-	100	-	166	-	149	-	149	-
.837	-	110	-	159	-	199	-	217	-	237	-	348	-	322	-	368	-	368	-
.838	-	47	-	81	-	112	-	139	-	159	-	254	-	244	-	259	-	259	-
.839	-	45	-	60	-	65	-	53	-	55	-	56	-	55	-	55	-	55	-
.840	-	65	-	116	-	185	-	317	-	411	-	444	-	497	-	547	-	547	-
.841	-	65	-	165	-	377	-	527	-	682	-	743	-	843	-	796	-	796	-
.842	-	65	-	219	-	96	-	105	-	136	-	149	-	174	-	124	-	124	-
.843	-	52	-	31	-	51	-	51	-	50	-	54	-	54	-	54	-	54	-
.844	-	0	-	45	-	50	-	50	-	51	-	54	-	54	-	54	-	54	-
.845	-	0	-	296	-	390	-	500	-	644	-	758	-	798	-	822	-	822	-
.846	-	0	-	47	-	78	-	94	-	199	-	179	-	172	-	177	-	177	-
.847	-	0	-	106	-	156	-	203	-	223	-	289	-	312	-	323	-	323	-
.848	-	45	-	58	-	65	-	72	-	69	-	67	-	69	-	68	-	68	-

TABLE 7. (Continued)

AIR CABLE ARCH AND BEAM TRIANGULAR CASE 4 337010 2-9-71										RECTANGULAR ROSETTES FINAL PRINT			
CABLE NUM	SCAN U15	SCAN U16	SCAN U17	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	110	000	000	000	000	000	000	000	000	000	000	000	000
PSI	000	000	000	000	000	000	000	000	000	000	000	000	000
301	371	249	28										
302	1,152	717	247										
303	762	483	138										
304	82	82	75										
305	601	466	317										
306	335	243	58										
307	1,186	259	130										
308	251	52	300										
309	466	434	159										
310	10	10	16										
311	113	14	19										
312	511	436	81										
313	139	111	50										
314	36	41	36										
315	976	624	88										
316	39	30	25										
317	507	427	57										
318	86	85	73										
319	59	9	0										
320	684	459	219										
321	371	225	110										
322	27	27	34										
323	273	377	93										
324	304	422	186										
325	289	259	139										
326	36	38	37										
327	8	56	96										
328	539	475	127										
329	274	169	112										
330	54	58	65										
331	871	642	300										
332	632	433	19										
333	762	553	159										
334	10	8	16										
335	135	15	62										
336	353	434	62										
337	243	134	0										
338	35	54	45										
339	507	380	98										
340	805	694	120										
341	149	57	11										
342	84	73	22										
343	796	497	134										
344	172	125	84										
345	312	156	25										
346	69	67	54										

TABLE 7. (Continued)

ALM CABLE ARCH AND BEAM STRUCTURAL CASE 4 337010 2-5-71														HECIANGULAR ROSETTES			FINAL PRINT		
GAGE NUM	SCAN U01	SCAN U02	SCAN U03	SCAN U04	SCAN U06	SCAN U08	SCAN U10	SCAN U12	SCAN U14										
% LOAD PSI	000 000	040 000	040 000	060 000	080 000	100 000	110 000	120 000	125 000										
337	81	107	199	391	423	534	614	741	717										
338	-	13	20	109	139	153	166	227	220										
339	50	60	90	141	142	190	224	257	249										
340	-	12	8	13	3	-	9	14	9										
341	90	459	481	624	775	1,033	1,302	1,381	1,483										
342	-	40	75	155	275	315	365	381	390										
343	75	150	278	389	525	674	834	881	936										
344	-	36	43	49	49	49	46	45	46										
345	-	15	170	215	478	556	624	737	703										
346	47	330	597	861	1,208	1,442	1,656	1,855	1,888										
347	16	80	191	268	365	443	516	559	592										
348	45	6	5	2	4	3	4	1	3										
349	66	219	477	641	931	1,140	1,297	1,431	1,521										
350	-	4	71	16	6	15	17	5	53										
351	35	94	274	326	463	562	657	713	787										
352	32	45	54	53	54	55	54	56	56										
353	29	155	300	438	572	729	807	843	879										
354	-	221	856	1,279	1,677	2,113	2,347	2,592	2,712										
355	96	173	278	420	553	692	770	874	917										
356	40	15	-	4	-	4	-	4	5										
357	-	6	379	781	1,532	2,023	2,236	2,497	2,611										
358	-	119	124	214	238	319	356	376	449										
359	57	145	329	473	652	852	940	1,061	1,081										
360	62	79	79	82	81	79	80	80	79										
361	119	57	150	244	244	441	331	379	474										
362	6	57	118	213	213	254	268	254	224										
363	57	57	134	228	228	348	299	316	349										
364	-	62	62	46	46	42	43	42	41										
365	65	65	181	276	291	448	480	449	489										
366	-	65	150	245	322	417	449	480	551										
367	65	65	165	261	307	433	464	464	520										
368	-	52	44	48	46	44	45	45	43										

TABLE 7. (Concluded)

AIM CABLE ARCH AND BEAM SIMULIAR CASE 4 337010 2-5-71										RECTANGULAR ROSETTES		FINAL PRINT	
CASE NUM	SCAN U15	SCAN U16	SCAN U17	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	110 000	000 000	000 000										
337	720	429	-	158									
338	248	133	-	96									
339	236	148	-	127									
340	19	16	-	41									
341	1,436	1,176	-	759									
342	405	408	-	9									
343	920	692	-	384									
344	45	41	-	28									
345	731	566	-	157									
346	1,861	1,445	-	249									
347	565	340	-	46									
348	4	7	-	15									
349	1,399	916	-	58									
350	6	21	-	36									
351	697	448	-	11									
352	55	54	-	22									
353	828	526	-	88									
354	2,607	1,723	-	381									
355	690	599	-	146									
356	4	2	-	27									
357	2,435	1,000	-	290									
358	345	336	-	23									
359	1,045	632	-	133									
360	80	81	-	67									
361	393	468	-	40									
362	206	405	-	9									
363	299	436	-	25									
364	43	43	-	54									
365	472	362	-	142									
366	472	362	-	80									
367	472	362	-	111									
368	44	45	-	49									

TABLE 8. TEST DATA, LOAD CASE 5

A1M CABLE ARCH AND BEAM SIMULTANEOUS CASE 5 337005 1-22-71										
GAGE NUM	SCAN U01	SCAN U02	SCAN U03	SCAN U04	SCAN U05	SCAN U07	SCAN U08	SCAN U09	SCAN U10	FINAL PRINT
% LOAD	000	000	040	060	080	100	110	120	125	
PSI	000	000	000	000	000	000	000	000	000	
001	-	0	495	604	929	1,561	1,721	1,888	1,972	
002	-	0	1	1	0	0	1	1	1	
003	-	3	63	143	220	393	432	466	491	
004	-	0	41	95	151	288	314	343	358	
005	-	0	421	442	669	1,166	1,277	1,395	1,435	
006	-	0	0	0	0	0	0	0	0	
007	-	0	3	2	2	2	3	3	3	
008	-	0	28	62	101	205	228	253	264	
009	-	0	0	0	0	0	0	0	0	
010	-	0	13	35	62	126	142	152	163	

A1M CABLE ARCH AND BEAM SIMULTANEOUS CASE 5 337005 1-22-71										
GAGE NUM	SCAN U11	SCAN U12	SCAN U13	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	FINAL PRINT
% LOAD	110	000	000							
PSI	000	000	000							
001	1,971	1,962	1							
002	1	1	1							
003	440	441	0							
004	348	348	0							
005	1,338	1,338	5							
006	1	0	0							
007	2	0	0							
008	244	243	1							
009	0	0	0							
010	152	84	1							

TABLE 8. (Continued)

ALM CABLE ARCH AND BEAM STIMULINAL CASE 5 337005 1-22-71										DISPLACEMENT PUTS			FINAL PRINT	
GAGE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 007	SCAN 008	SCAN 009	SCAN 010					
% LOAD PSI	000 000	080 000	040 000	060 000	080 000	100 000	110 000	120 000	120 000					
101	00000	00003	0.0000	-	0.0010	-	0.0058	-	0.0072	-	0.0082	-	0.0091	
102	00002	00091	0.0617	0.0568	0.1295	0.1223	0.1905	0.2099	0.2214	0.2315				
103	00003	00296	0.0638	0.1040	0.1346	0.1693	0.2002	0.2058	0.2154	0.2350				
104	00004	00478	0.0598	0.0943	0.1265	0.1631	0.2029	0.2242	0.2350					
105	00000	00304	0.0638	0.1016	0.1368	0.1831	0.2029	0.2242	0.2350					
106	00002	00353	0.1192	0.1891	0.2555	0.3488	0.3864	0.4257	0.4458	0.4553				
107	00006	00332	0.1145	0.1892	0.2445	0.3387	0.3687	0.4061	0.4253	0.4458				
108	00000	00379	0.1228	0.1986	0.2594	0.3514	0.3884	0.4278	0.4470	0.4672				
109	00002	00097	-	0.0037	-	0.0067	-	0.0073	-	0.0072				
110	00000	00358	0.0744	0.1197	0.1576	0.2139	0.2365	0.2603	0.2723	0.2859				
111	00000	00433	0.0718	0.1114	0.1495	0.2015	0.2223	0.2443	0.2559	0.2668				
112	00004	00354	0.0736	0.1148	0.1542	0.2094	0.2311	0.2545	0.2668	0.2812				
113	00004	00800	-	0.0053	-	0.0102	-	0.0123	-	0.0162				
114	00000	00841	-	0.0055	-	0.0066	-	0.0078	-	0.0085				
115	00002	00895	-	0.0112	-	0.0170	-	0.0174	-	0.0188				
116	00000	00847	-	0.0070	-	0.0081	-	0.0091	-	0.0092				
117	00003	00006	-	0.0012	-	0.0056	-	0.0091	-	0.0135				
118	00000	00003	0.0006	0.0076	0.0117	0.0257	0.0315	0.0371	0.0382	0.0391				
119	00000	00805	0.0000	0.0046	0.0078	0.0184	0.0234	0.0276	0.0291	0.0303				
120	00006	00012	-	0.0003	-	0.0079	-	0.0288	-	0.0303				
121	00000	00000	-	0.0006	-	0.0023	-	0.0035	-	0.0049				
122	00002	00000	-	0.0004	-	0.0018	-	0.0025	-	0.0028				
123	00000	00900	0.0032	0.0185	0.0156	0.0301	0.0358	0.0411	0.0433	0.0457				
124	00000	00014	0.0000	0.0063	0.0099	0.0210	0.0261	0.0299	0.0308	0.0325				
125	00000	00005	-	0.0011	-	0.0030	-	0.0048	-	0.0051				
126	00000	00004	0.0004	0.0007	0.0007	0.0011	0.0011	0.0014	0.0016	0.0016				
127	00000	00024	0.0061	0.0126	0.0176	0.0284	0.0325	0.0359	0.0376	0.0387				
128	00000	00097	0.0036	0.0090	0.0122	0.0204	0.0240	0.0276	0.0287	0.0294				
129	00000	00004	-	0.0009	-	0.0018	-	0.0005	-	0.0004				

TABLE 8. (Continued)

A1M CABLE ARCH AND BEAM SIMULATIONAL CASE 5 337005 1-22-71										DISPLACEMENT POTS		FINAL PRINT	
CASE NUM	SCAN U11	SCAN U12	SCAN U13	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD PSI	110 000	000 000	000 000										
101	-	0.0109	-	0.0120	-	0.0031							
102	0.2196	0.1271		0.0058									
103	0.2321	0.1372		0.0036									
104	0.2157	0.1251		0.0064									
105	0.2345	0.1371		0.0082									
106	0.4410	0.2730		0.0407									
107	0.4204	0.2594		0.0347									
108	0.4413	0.2724		0.0316									
109	-	0.0072	-	0.0415	-	0.0150							
110	0.2673	0.1641		0.0241									
111	0.2506	0.1522		0.0212									
112	0.2608	0.1607		0.0209									
113	-	0.0193	-	0.0165	-	0.0077							
114	0.0047	0.0079		0.0099									
115	-	0.0177	-	0.0088		0.0051							
116	-	0.0016	-	0.0029		0.0061							
117	-	0.0135	-	0.0105	-	0.0064							
118	0.0385	0.0251		0.0093									
119	0.0291	0.0184		0.0071									
120	0.0303	0.0182		0.0062									
121	-	0.0064	-	0.0058	-	0.0041							
122	-	0.0036	-	0.0032	-	0.0028							
123	0.0420	0.0246		0.0071									
124	0.0303	0.0180		0.0039									
125	-	0.0057	-	0.0046	-	0.0034							
126	0.0009	0.0000		0.0014									
127	0.0369	0.0219		0.0048									
128	0.0283	0.0158		0.0014									
129	-	0.0007	-	0.0007	-	0.0014							

TABLE 8. (Continued)

AIM CABLE ARCH AND BEAM SIMULTANEOUS CASE 5 337005 1-22-71										SINGLE STRAIN GAGES				FINAL PRINT	
GAGE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 007	SCAN 008	SCAN 009	SCAN 010						
% LOAD	000	000	040	060	080	100	110	120	125						
PSI	000	000	000	000	000	000	000	000	000						
201	-	84	-	409	-	439	-	649	-	879	-	1,130	-	1,297	-
202	21	167	-	167	-	293	-	502	-	586	-	753	-	879	-
203	42	42	-	42	-	356	-	356	-	460	-	628	-	753	-
204	42	42	-	42	-	356	-	356	-	774	-	941	-	1,130	-
205	21	21	-	409	-	398	-	586	-	816	-	1,067	-	1,255	-
206	63	167	-	167	-	398	-	502	-	628	-	858	-	962	-
207	21	409	-	409	-	377	-	628	-	795	-	1,067	-	1,213	-
208	63	126	-	126	-	335	-	523	-	690	-	921	-	1,109	-
209	21	146	-	146	-	230	-	398	-	523	-	628	-	774	-
210	0	126	-	126	-	439	-	544	-	711	-	921	-	1,109	-
211	42	188	-	188	-	418	-	628	-	816	-	1,088	-	1,255	-
212	105	493	-	493	-	502	-	628	-	732	-	962	-	1,088	-
213	21	167	-	167	-	418	-	544	-	795	-	1,046	-	1,213	-
214	42	409	-	409	-	335	-	523	-	711	-	900	-	1,025	-
215	21	167	-	167	-	377	-	544	-	795	-	983	-	1,172	-
216	21	146	-	146	-	314	-	419	-	649	-	774	-	941	-
217	0	21	-	21	-	42	-	21	-	0	-	21	-	105	-
218	21	0	-	0	-	0	-	84	-	105	-	63	-	84	-
219	63	84	-	84	-	105	-	167	-	209	-	167	-	105	-
220	42	105	-	105	-	105	-	136	-	146	-	63	-	21	-
221	21	167	-	167	-	272	-	439	-	565	-	711	-	795	-
222	0	167	-	167	-	335	-	502	-	544	-	711	-	774	-
223	21	42	-	42	-	146	-	167	-	230	-	230	-	314	-
224	21	42	-	42	-	105	-	188	-	356	-	356	-	398	-
225	0	63	-	63	-	63	-	84	-	105	-	230	-	272	-
226	0	42	-	42	-	126	-	230	-	335	-	377	-	418	-
227	0	84	-	84	-	167	-	251	-	314	-	356	-	502	-
228	0	42	-	42	-	42	-	42	-	42	-	167	-	167	-
229	21	21	-	21	-	63	-	84	-	105	-	167	-	293	-
230	0	42	-	42	-	21	-	42	-	105	-	42	-	63	-
231	42	84	-	84	-	42	-	42	-	105	-	63	-	84	-
232	0	0	-	0	-	42	-	105	-	84	-	167	-	167	-

TABLE 8. (Continued)

ALM CABLE ARCH AND BEAM SIMULTANEOUS CASE 5 337005 1-22-71										SINGLE STRAIN GAGES		FINAL PRINT	
GAGE NUM	SCAN 011	SCAN 012	SCAN 013	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	120 000	000 000	000 000										
201	-	2,360	-	732	-	21							
202		900		202		21							
203	-	795	-	418	-	0							
204	-	1,151	-	286	-	42							
205	-	1,297	-	732	-	0							
206	-	1,004	-	344	-	63							
207	-	1,255	-	690	-	21							
208	-	1,151	-	286	-	42							
209	-	858	-	481	-	0							
210	-	1,109	-	244	-	21							
211	-	1,318	-	670	-	42							
212	-	1,046	-	670	-	293							
213	-	1,297	-	670	-	42							
214	-	1,088	-	305	-	42							
215	-	1,276	-	711	-	21							
216	-	962	-	931	-	21							
217	-	84	-	142	-	105							
218	-	84	-	0	-	84							
219	-	125	-	21	-	84							
220	-	21	-	42	-	21							
221	-	795	-	481	-	63							
222	-	795	-	418	-	0							
223	-	314	-	286	-	21							
224	-	439	-	314	-	188							
225	-	314	-	230	-	63							
226	-	418	-	167	-	0							
227	-	418	-	167	-	42							
228	-	209	-	109	-	21							
229	-	272	-	188	-	42							
230	-	42	-	42	-	0							
231	-	84	-	142	-	0							
232	-	167	-	226	-	42							

TABLE 8. (Continued)

ALM CABLE ARCH AND BEAM SINGULAR CASE 5 337005 1-22-71																RECTANGULAR ROSETTES				FINAL PHINI	
WAVE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 007	SCAN 008	SCAN 009	SCAN 010												
% LOAD	000	080	040	060	080	100	110	120	127												
PSI	000	080	000	000	000	000	000	000	000												
801	27	-	71	-	69	-	161	-	225	-	376	-	345	-	379	-	408				
802	4	-	115	-	212	-	401	-	524	-	655	-	685	-	807	-	809				
803	11	-	22	-	71	-	120	-	149	-	139	-	170	-	201	-	201				
804	67	-	22	-	3	-	12	-	9	-	8	-	7	-	9	-	13				
805	87	-	134	-	190	-	261	-	316	-	449	-	541	-	549	-	557				
806	40	-	56	-	81	-	120	-	145	-	199	-	244	-	219	-	261				
807	51	-	86	-	75	-	84	-	79	-	81	-	80	-	83	-	87				
808	56	-	30	-	51	-	180	-	215	-	316	-	334	-	363	-	317				
809	24	-	61	-	230	-	392	-	504	-	684	-	728	-	772	-	776				
810	40	-	46	-	90	-	181	-	145	-	184	-	197	-	194	-	229				
811	6	-	30	-	8	-	19	-	11	-	10	-	14	-	11	-	15				
812	47	-	118	-	205	-	308	-	374	-	510	-	551	-	557	-	626				
813	13	-	24	-	45	-	98	-	95	-	145	-	199	-	161	-	186				
814	16	-	71	-	80	-	105	-	139	-	182	-	176	-	198	-	220				
815	45	-	97	-	84	-	84	-	82	-	86	-	85	-	87	-	90				
816	4	-	60	-	80	-	159	-	152	-	201	-	284	-	252	-	271				
817	27	-	322	-	389	-	588	-	660	-	798	-	902	-	872	-	978				
818	11	-	155	-	194	-	184	-	254	-	298	-	309	-	310	-	354				
819	67	-	5	-	7	-	80	-	11	-	9	-	7	-	12	-	10				
820	35	-	143	-	301	-	446	-	692	-	796	-	736	-	826	-	916				
821	35	-	44	-	74	-	179	-	276	-	297	-	326	-	361	-	395				
822	35	-	50	-	113	-	133	-	208	-	250	-	205	-	232	-	260				
823	77	-	81	-	73	-	67	-	60	-	57	-	61	-	59	-	58				
824	27	-	85	-	144	-	217	-	291	-	386	-	430	-	480	-	453				
825	4	-	196	-	355	-	470	-	739	-	894	-	1,037	-	1,081	-	1,077				
826	11	-	56	-	106	-	127	-	224	-	254	-	304	-	301	-	312				
827	23	-	4	-	13	-	4	-	9	-	8	-	8	-	3	-	5				
828	0	-	186	-	319	-	489	-	606	-	771	-	838	-	892	-	915				
829	0	-	95	-	118	-	168	-	206	-	322	-	349	-	358	-	334				
830	0	-	46	-	101	-	156	-	200	-	225	-	245	-	267	-	290				
831	45	-	60	-	71	-	67	-	67	-	72	-	67	-	67	-	65				
832	0	-	299	-	589	-	845	-	1,137	-	1,435	-	1,557	-	1,706	-	1,740				
833	0	-	14	-	33	-	80	-	80	-	2	-	5	-	74	-	9				
834	0	-	142	-	261	-	439	-	528	-	716	-	776	-	816	-	866				
835	45	-	87	-	87	-	83	-	83	-	80	-	81	-	81	-	80				
836	56	-	59	-	67	-	64	-	78	-	108	-	124	-	138	-	171				
837	21	-	219	-	277	-	491	-	578	-	736	-	781	-	864	-	890				
838	40	-	40	-	105	-	170	-	250	-	314	-	329	-	333	-	359				
839	51	-	6	-	6	-	7	-	6	-	11	-	11	-	10	-	12				
840	31	-	113	-	626	-	905	-	1,191	-	1,411	-	1,599	-	1,739	-	1,778				
841	31	-	123	-	123	-	126	-	183	-	208	-	150	-	197	-	189				
842	31	-	126	-	252	-	389	-	504	-	661	-	724	-	713	-	794				
843	45	-	90	-	90	-	86	-	88	-	89	-	89	-	89	-	90				
844	16	-	146	-	104	-	92	-	99	-	74	-	81	-	86	-	91				
845	16	-	141	-	333	-	408	-	597	-	738	-	762	-	831	-	855				
846	16	-	147	-	115	-	158	-	229	-	332	-	340	-	383	-	402				
45	0	-	0	-	8	-	3	-	3	-	3	-	3	-	3	-	2				

TABLE 8. (Continued)

AIR CABLE-ARCH AND BEAM SIMULANEOUS CASE 5 337005 1-22-71										RECTANGULAR ROSETTES		FINAL PRINT	
GAGE NUM	SCAN 011	SCAN 012	SCAN 013	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
S LOAD PSI	320 000	000 000	000 000										
801	-	408	-	499	-	7							
802	-	747	-	419	-	87							
803	-	170	-	60	-	40							
804	-	476	-	32	-	84							
805	-	53	-	20	-	7							
806	-	213	-	120	-	40							
807	-	596	-	84	-	51							
808	-	767	-	136	-	146							
809	-	205	-	355	-	10							
810	-	536	-	113	-	68							
811	-	149	-	27	-	27							
812	-	195	-	83	-	16							
813	-	203	-	56	-	16							
814	-	796	-	85	-	16							
815	-	297	-	130	-	36							
816	-	730	-	44	-	58							
817	-	332	-	27	-	11							
818	-	199	-	22	-	22							
819	-	406	-	499	-	40							
820	-	937	-	30	-	34							
821	-	265	-	87	-	67							
822	-	293	-	51	-	42							
823	-	299	-	55	-	62							
824	-	247	-	31	-	93							
825	-	64	-	155	-	78							
826	-	1691	-	12	-	23							
827	-	50	-	48	-	0							
828	-	82	-	58	-	45							
829	-	145	-	93	-	93							
830	-	370	-	27	-	46							
831	-	12	-	66	-	27							
832	-	1716	-	11	-	11							
833	-	108	-	7	-	23							
834	-	764	-	8.003	-	4							
835	-	89	-	131	-	27							
836	-	92	-	41	-	11							
837	-	876	-	59	-	67							
838	-	392	-	27	-	80							
839	-	5	-	172	-	13							
840	-	4	-	33	-	33							
841	-	4	-	67	-	67							

TABLE 8. (Continued)

AIM CABLE ARCH AND BEAM SIMULATIONAL CASE 5 337005 1-22-71										RECTANGULAR ROSETTES				FINAL PRINT	
GAGE NUM	SCAN 001	SCAN 002	SCAN 003	SCAN 004	SCAN 005	SCAN 007	SCAN 008	SCAN 009	SCAN 010						
% LOAD	000	020	040	060	080	100	110	120	125						000
PSI	000	080	000	000	000	000	000	000	000						000
337	47	87	49	-	22	-	49	-	210	-	326	-	382	-	382
338	15	7	18	-	72	-	169	-	321	-	392	-	524	-	524
339	16	40	33	-	25	-	60	-	56	-	33	-	71	-	71
340	45	39	22	-	9	-	33	-	22	-	22	-	42	-	42
341	56	173	127	-	310	-	333	-	1,453	-	1,585	-	1,605	-	1,779
342	36	17	2	-	64	-	73	-	358	-	351	-	362	-	407
343	11	95	65	-	123	-	130	-	548	-	617	-	622	-	686
344	23	33	7	-	20	-	13	-	20	-	19	-	17	-	18
345	27	143	165	-	7	-	14	-	100	-	85	-	209	-	185
346	4	16	71	-	149	-	204	-	306	-	384	-	509	-	502
347	11	80	118	-	71	-	95	-	103	-	150	-	150	-	158
348	23	39	47	-	48	-	57	-	47	-	43	-	43	-	48
349	118	78	111	-	149	-	235	-	283	-	335	-	406	-	441
350	24	47	45	-	69	-	77	-	154	-	165	-	187	-	152
351	71	16	33	-	40	-	79	-	65	-	85	-	110	-	145
352	49	0	67	-	84	-	72	-	83	-	79	-	79	-	79
353	102	47	143	-	200	-	227	-	305	-	377	-	479	-	501
354	56	16	50	-	60	-	87	-	149	-	158	-	214	-	189
355	41	90	81	-	78	-	87	-	81	-	87	-	87	-	90
356	16	40	119	-	172	-	221	-	296	-	342	-	358	-	383
357	16	9	6	-	78	-	2	-	47	-	64	-	48	-	23
358	16	25	57	-	47	-	112	-	124	-	139	-	155	-	180
359	90	54	73	-	90	-	70	-	81	-	82	-	83	-	78
360	40	16	16	-	22	-	6	-	59	-	59	-	0	-	6
361	25	16	16	-	25	-	57	-	129	-	129	-	63	-	119
362	9	0	90	-	54	-	17	-	13	-	13	-	31	-	57
363	81	9	16	-	16	-	40	-	80	-	63	-	102	-	19
364	19	53	16	-	16	-	71	-	80	-	63	-	71	-	81
365	50	22	16	-	16	-	56	-	80	-	63	-	87	-	50
366	54	67	90	-	90	-	49	-	51	-	45	-	42	-	54

TABLE 8. (Concluded)

ALM CABLE ARCH AND BEAM SIMULIUMAL CASE 5 337005 1-22-71										RECTANGULAR ROSETTES				FINAL PRINT	
GAGE NUM	SCAN U11	SCAN U12	SCAN U13	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	110 000	000 000	000 000												
337	-	367	-	147	-	-	-	-	-	-	-	-	-	80	
338	-	508	-	197	-	-	-	-	-	-	-	-	-	13	
339	-	70	-	25	-	-	-	-	-	-	-	-	-	33	
340	-	32	-	54	-	-	-	-	-	-	-	-	-	67	
341	1,765	8,053	-	2,701	-	-	-	-	-	-	-	-	-		
342	390	383	-	453	-	-	-	-	-	-	-	-	-		
343	688	635	-	1,124	-	-	-	-	-	-	-	-	-		
344	-	18	-	21	-	-	-	-	-	-	-	-	-	22	
345	-	163	-	10	-	-	-	-	-	-	-	-	-	102	
346	-	431	-	439	-	-	-	-	-	-	-	-	-	71	
347	-	134	-	115	-	-	-	-	-	-	-	-	-	87	
348	-	43	-	53	-	-	-	-	-	-	-	-	-	48	
349	-	465	-	435	-	-	-	-	-	-	-	-	-	72	
350	190	140	-	22	-	-	-	-	-	-	-	-	-	22	
351	138	47	-	25	-	-	-	-	-	-	-	-	-	25	
352	-	75	-	81	-	-	-	-	-	-	-	-	-		
353	486	178	-	31	-	-	-	-	-	-	-	-	-	31	
354	76	9	-	31	-	-	-	-	-	-	-	-	-	31	
355	205	85	-	31	-	-	-	-	-	-	-	-	-	31	
356	88	79	-	45	-	-	-	-	-	-	-	-	-		
357	323	161	-	4	-	-	-	-	-	-	-	-	-	4	
358	20	24	-	27	-	-	-	-	-	-	-	-	-	27	
359	151	103	-	11	-	-	-	-	-	-	-	-	-	11	
360	-	86	-	22	-	-	-	-	-	-	-	-	-	22	
361	-	1	-	31	-	-	-	-	-	-	-	-	-	31	
362	-	93	-	31	-	-	-	-	-	-	-	-	-	0	
363	-	46	-	40	-	-	-	-	-	-	-	-	-	40	
364	-	15	-	39	-	-	-	-	-	-	-	-	-	45	
365	-	2	-	27	-	-	-	-	-	-	-	-	-	27	
366	-	127	-	4	-	-	-	-	-	-	-	-	-	4	
367	-	65	-	11	-	-	-	-	-	-	-	-	-	11	
368	-	38	-	23	-	-	-	-	-	-	-	-	-	23	

TABLE 9. TEST DATA, LOAD CASE 6

AIM CABLE ARCH AND BEAM SIMULTANEOUS CASE 6 337006 1-22-71											
CASE NUM		SCAN U14	SCAN U15	SCAN U16	SCAN U17	SCAN U19	SCAN U21	SCAN U22	SCAN U23	FINAL PRINT	
X LOAD		000	020	040	060	080	100	110	120		
PSI		000	000	000	000	000	000	000	000		
001	3	3	300	624	927	1,249	1,573	1,734	1,897	1,977	
002	1	1	1	1	1	0	1	1	2	2	
003	1	1	71	147	224	313	392	435	472	493	
004	44	44	44	102	162	237	297	325	355	371	
005	1	1	249	500	755	1,030	1,304	1,430	1,560	1,627	
006	0	0	0	0	0	0	0	0	1	0	
007	0	0	3	3	3	3	4	3	4	4	
008	0	0	37	77	117	157	212	230	253	262	
009	0	0	0	0	0	0	0	0	0	0	
010	0	0	21	47	71	98	126	138	152	157	

AIM CABLE ARCH AND BEAM SIMULTANEOUS CASE 6 337006 1-22-71											
CASE NUM		SCAN U26	SCAN U28	SCAN U29	SCAN	SCAN	SCAN	SCAN	SCAN	FINAL PRINT	
X LOAD		110	000	000							
PSI		000	000	000							
001	1,748	939	11								
002	2	0	1								
003	434	444	10								
004	328	175	2								
005	1,437	772	5								
006	0	0	0								
007	4	5	0								
008	230	124	11								
009	0	0	0								
010	138	76	13								

TABLE 9. (Continued)

ALM CABLE ARCH AND BEAM SIMULATIONAL CASE 6 337006 1-22-71													DISPLACEMENT PUTS			FINAL PRINT		
GAGE NUM	SCAN 014	SCAN 015	SCAN 016	SCAN 017	SCAN 019	SCAN 021	SCAN 022	SCAN 023	SCAN 024									
X LOAD	000	080	040	060	080	100	110	120	122									
PSI	000	080	000	000	000	000	000	000	000									
101	0.0002	0.0002	-	0.0002	-	0.0055	-	0.0079	-	0.0085	-	0.0097	-	0.0108				
102	0.0000	0.0308	0.0668	0.1024	0.1417	0.1799	0.1987	0.2184	0.2284	0.1987	0.2184	0.2284	0.2284	0.2284				
103	0.0003	0.0316	0.0688	0.1059	0.1471	0.1877	0.2074	0.2275	0.2376	0.2074	0.2275	0.2376	0.2376	0.2376				
104	-	0.0002	0.0594	0.0989	0.1373	0.1757	0.1938	0.2134	0.2233	0.1938	0.2134	0.2233	0.2233	0.2233				
105	0.0000	0.0321	0.0689	0.1069	0.1485	0.1895	0.2086	0.2288	0.2396	0.2086	0.2288	0.2396	0.2396	0.2396				
106	0.0000	0.0530	0.1377	0.2132	0.2970	0.3773	0.4151	0.4598	0.4822	0.4151	0.4598	0.4822	0.4822	0.4822				
107	-	0.0003	0.0594	0.1316	0.2058	0.2876	0.4043	0.4479	0.4699	0.4043	0.4479	0.4699	0.4699	0.4699				
108	0.0000	0.0575	0.1436	0.2203	0.3056	0.3882	0.4253	0.4696	0.4911	0.4253	0.4696	0.4911	0.4911	0.4911				
109	-	0.0002	0.0510	0.0912	0.0866	0.0010	0.0007	0.0005	0.0007	0.0007	0.0005	0.0007	0.0007	0.0007				
110	0.0000	0.0403	0.0867	0.1343	0.1866	0.2380	0.2620	0.2895	0.3033	0.2620	0.2895	0.3033	0.3033	0.3033				
111	-	0.0002	0.0571	0.1342	0.1859	0.2379	0.2611	0.2883	0.3022	0.2611	0.2883	0.3022	0.3022	0.3022				
112	0.0000	0.0412	0.0875	0.1350	0.1868	0.2386	0.2617	0.2894	0.3034	0.2617	0.2894	0.3034	0.3034	0.3034				
113	0.0000	0.0004	0.0004	0.0005	0.0000	-	0.0030	-	0.0042	-	0.0030	-	0.0042	-				
114	0.0000	-	0.0560	-	0.0832	-	0.1126	-	0.1444	-	0.1751	-	0.2062	-				
115	-	0.0002	-	0.0524	-	0.0924	-	0.1253	-	0.1590	-	0.1932	-	0.2262				
116	-	0.0003	-	0.0575	-	0.0843	-	0.1135	-	0.1444	-	0.1742	-	0.2045				
117	-	0.0003	-	0.0020	-	0.0015	-	0.0009	-	0.0015	-	0.0015	-	0.0020				
118	0.0000	-	0.0621	-	0.0998	-	0.1363	-	0.1742	-	0.2089	-	0.2477	-				
119	-	0.0002	-	0.0605	-	0.0906	-	0.1239	-	0.1572	-	0.1884	-	0.2155				
120	-	0.0009	-	0.0597	-	0.1033	-	0.1407	-	0.1781	-	0.2134	-	0.2416				
121	-	0.0003	-	0.0006	-	0.0023	-	0.0032	-	0.0035	-	0.0047	-	0.0055				
122	-	0.0002	-	0.0009	-	0.0011	-	0.0007	-	0.0004	-	0.0007	-	0.0007				
123	0.0002	-	0.0541	-	0.0814	-	0.1113	-	0.1427	-	0.1757	-	0.2087	-				
124	0.0000	-	0.0572	-	0.0849	-	0.1161	-	0.1474	-	0.1805	-	0.2130	-				
125	-	0.0009	-	0.0004	-	0.0004	-	0.0007	-	0.0016	-	0.0018	-	0.0018				
126	0.0000	-	0.0002	-	0.0004	-	0.0020	-	0.0029	-	0.0034	-	0.0040	-				
127	0.0000	-	0.0489	-	0.0265	-	0.0362	-	0.0459	-	0.0497	-	0.0543	-				
128	0.0000	-	0.0091	-	0.0201	-	0.0407	-	0.0510	-	0.0550	-	0.0602	-				
129	0.0000	-	0.0009	-	0.0014	-	0.0004	-	0.0012	-	0.0011	-	0.0012	-				

TABLE 9. (Continued)

ALM CABLE ARCH AND BEAM SIMULATIONAL CASE 6 337006 1-22-71									
GAGE NUM	SCAN U26	SCAN U28	SCAN 029	SCAN	SCAN	DISPLACEMENT PUTS	SCAN	SCAN	FINAL PRINT
% LOAD PSI	110 000	000 000	000 000						
101	-	0.0099	-	0.0073	-	0.0019			
102		0.2044		0.1119		0.0038			
103		0.2124		0.1158		0.0038			
104		0.2000		0.1092		0.0041			
105		0.2140		0.1173		0.0034			
106		0.4361		0.2554		0.0140			
107		0.4247		0.2473		0.0142			
108		0.4486		0.2660		0.0149			
109	-	0.0123	-	0.0123	-	0.0080			
110		0.2736		0.1597		0.0085			
111		0.2736		0.1605		0.0101			
112		0.2756		0.1926		0.0103			
113	-	0.0053	-	0.0046	-	0.0016			
114	-	0.1654	-	0.1004	-	0.0271			
115	-	0.1825	-	0.1110	-	0.0296			
116	-	0.1640	-	0.0992	-	0.0306			
117	-	0.0029	-	0.0012	-	0.0032			
118	-	0.1964	-	0.1199	-	0.0301			
119	-	0.1772	-	0.1086	-	0.0289			
120	-	0.2013	-	0.1224	-	0.0333			
121	-	0.0052	-	0.0044	-	0.0041			
122	-	0.0009	-	0.0007	-	0.0028			
123	-	0.1603	-	0.0973	-	0.0209			
124	-	0.1656	-	0.0997	-	0.0243			
125	-	0.0012	-	0.0007	-	0.0014			
126		0.0038		0.0022		0.0002			
127	-	0.0514	-	0.0331	-	0.0073			
128	-	0.0568	-	0.0355	-	0.0093			
129		0.0021		0.0041		0.0026			

TABLE 9. (Continued)

AIM CABLE ANCH AND BEAM SIMULTANEOUS CASE 6 337006 1-22-71																			
BASE NUM		SCAN 014		SCAN 015		SCAN 016		SCAN 017		SCAN 019		SCAN 021		SCAN 022		SCAN 023		SCAN 024	
% LOAD		000		020		040		060		080		100		110		120		125	
PSI		000		080		000		000		000		000		000		000		000	
201	-	21	-	167	-	418	-	607	-	837	-	962	-	1,151	-	1,255	-	1,318	-
202	21	188	-	188	-	377	-	565	-	753	-	900	-	941	-	1,088	-	1,088	-
203	0	167	-	167	-	293	-	481	-	628	-	816	-	879	-	962	-	1,025	-
204	21	146	-	146	-	272	-	439	-	649	-	816	-	921	-	1,004	-	1,046	-
205	21	146	-	146	-	335	-	460	-	586	-	732	-	774	-	921	-	921	-
206	21	188	-	188	-	502	-	732	-	1,004	-	1,213	-	1,402	-	1,527	-	1,569	-
207	-	21	-	167	-	398	-	670	-	858	-	1,130	-	1,234	-	1,381	-	1,402	-
208	21	167	-	167	-	377	-	586	-	774	-	1,004	-	1,109	-	1,193	-	1,213	-
209	-	63	-	146	-	335	-	460	-	586	-	732	-	858	-	921	-	941	-
210	0	188	-	188	-	356	-	544	-	711	-	900	-	1,004	-	1,088	-	1,151	-
211	0	188	-	188	-	398	-	586	-	837	-	1,004	-	1,151	-	1,255	-	1,318	-
212	42	146	-	146	-	335	-	502	-	628	-	753	-	837	-	962	-	1,046	-
213	21	146	-	146	-	481	-	670	-	941	-	1,151	-	1,255	-	1,381	-	1,423	-
214	63	409	-	409	-	418	-	586	-	774	-	962	-	1,046	-	1,130	-	1,213	-
215	-	63	-	146	-	293	-	439	-	565	-	711	-	732	-	795	-	879	-
216	0	209	-	209	-	481	-	711	-	962	-	1,213	-	1,360	-	1,465	-	1,485	-
217	-	21	-	84	-	146	-	188	-	272	-	293	-	356	-	377	-	356	-
218	-	21	-	167	-	209	-	314	-	418	-	481	-	481	-	544	-	481	-
219	-	21	-	188	-	377	-	544	-	690	-	921	-	962	-	1,046	-	1,046	-
220	-	21	-	84	-	251	-	377	-	460	-	565	-	565	-	607	-	607	-
221	21	451	-	451	-	523	-	837	-	1,130	-	1,444	-	1,485	-	1,632	-	1,716	-
222	21	114	-	114	-	607	-	858	-	1,172	-	1,444	-	1,506	-	1,674	-	1,716	-
223	0	188	-	188	-	398	-	607	-	879	-	1,151	-	1,255	-	1,381	-	1,423	-
224	21	409	-	409	-	481	-	711	-	941	-	1,193	-	1,297	-	1,402	-	1,465	-
225	21	42	-	42	-	63	-	63	-	146	-	209	-	209	-	230	-	251	-
226	-	21	-	0	-	63	-	84	-	42	-	21	-	63	-	84	-	84	-
227	-	21	-	63	-	42	-	63	-	63	-	84	-	84	-	84	-	105	-
228	21	63	-	63	-	84	-	84	-	230	-	251	-	251	-	335	-	272	-
229	42	84	-	84	-	21	-	42	-	21	-	0	-	21	-	21	-	42	-
230	-	21	-	21	-	0	-	42	-	42	-	105	-	126	-	126	-	63	-
231	-	42	-	42	-	21	-	21	-	21	-	0	-	42	-	42	-	0	-
232	0	63	-	63	-	63	-	63	-	84	-	84	-	84	-	84	-	105	-

TABLE 9. (Continued)

AIM CABLE ARCH AND BEAM SIMULTANEOUS CASE 6 337006 1-22-71										SINGLE STRAIN GAGES		FINAL PRINT	
GAGE NUM	SUAN U26	SUAN U28	SUAN U29	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	11U 00U	00U 00U	000 000										
201	-	1,151	-	907	-	21							
202	-	962	-	565	-	63							
203	-	921	-	502	-	42							
204	-	921	-	439	-	0							
205	-	858	-	439	-	21							
206	-	1,402	-	900	-	105							
207	-	1,234	-	711	-	42							
208	-	1,109	-	607	-	21							
209	-	858	-	481	-	42							
210	-	1,004	-	565	-	42							
211	-	1,193	-	649	-	21							
212	-	983	-	649	-	188							
213	-	1,255	-	732	-	42							
214	-	1,088	-	607	-	84							
215	-	774	-	577	-	21							
216	-	1,339	-	732	-	105							
217	-	293	-	426	-	0							
218	-	502	-	351	-	0							
219	-	983	-	586	-	42							
220	-	565	-	414	-	0							
221	-	1,485	-	774	-	42							
222	-	1,548	-	837	-	21							
223	-	1,234	-	544	-	146							
224	-	1,318	-	690	-	42							
225	-	209	-	409	-	21							
226	-	42	-	21	-	0							
227	-	126	-	167	-	105							
228	-	293	-	451	-	42							
229	-	0	-	42	-	42							
230	-	84	-	105	-	0							
231	-	21	-	84	-	84							
232	-	63	-	21	-	21							

TABLE 9. (Continued)

RECTANGULAR ROSETTES													FINAL PRINT		
DATE	NUM	SCAN 014	SCAN 015	SCAN 016	SCAN 017	SCAN 019	SCAN 021	SCAN 022	SCAN 023	SCAN 024					
X	LOAD	000	000	040	060	080	100	110	120	125					
PSI		000	000	000	000	000	000	000	000	000					
801	-	49	-	26	-	201	-	424	-	495	-	558			
802	-	18	-	470	-	736	-	1,518	-	1,628	-	1,691			
803	-	33	-	189	-	268	-	497	-	566	-	567			
804	-	22	-	0	-	2	-	2	-	0	-	1			
805	-	1	-	224	-	346	-	694	-	797	-	791			
806	-	93	-	25	-	61	-	24	-	118	-	80			
807	-	46	-	40	-	174	-	335	-	389	-	370			
808	-	30	-	84	-	81	-	75	-	74	-	78			
809	-	9	-	248	-	350	-	637	-	692	-	738			
810	-	40	-	33	-	743	-	1,399	-	1,400	-	1,542			
811	-	25	-	57	-	197	-	331	-	409	-	402			
812	-	9	-	4	-	2	-	1	-	1	-	2			
813	-	89	-	396	-	454	-	794	-	886	-	908			
814	-	40	-	167	-	171	-	206	-	238	-	248			
815	-	22	-	115	-	142	-	294	-	324	-	330			
816	-	67	-	77	-	82	-	82	-	83	-	84			
817	-	15	-	56	-	90	-	263	-	377	-	399			
818	-	47	-	79	-	180	-	2,229	-	2,434	-	2,505			
819	-	16	-	325	-	466	-	861	-	1,028	-	1,058			
820	-	0	-	3	-	3	-	5	-	3	-	3			
821	-	19	-	467	-	761	-	1,294	-	1,443	-	1,609			
822	-	81	-	231	-	330	-	392	-	461	-	546			
823	-	50	-	157	-	262	-	451	-	497	-	532			
824	-	36	-	78	-	74	-	75	-	75	-	75			
825	-	27	-	223	-	345	-	572	-	689	-	766			
826	-	4	-	745	-	1,153	-	2,051	-	2,278	-	2,575			
827	-	11	-	261	-	419	-	740	-	873	-	905			
828	-	22	-	3	-	2	-	1	-	0	-	0			
829	-	7	-	559	-	748	-	1,311	-	1,557	-	1,583			
830	-	87	-	330	-	330	-	403	-	441	-	447			
831	-	40	-	184	-	264	-	483	-	568	-	568			
832	-	39	-	80	-	79	-	79	-	79	-	79			
833	-	87	-	1,066	-	1,591	-	2,845	-	3,057	-	3,472			
834	-	7	-	121	-	168	-	184	-	191	-	191			
835	-	40	-	472	-	712	-	1,330	-	1,433	-	1,645			
836	-	39	-	89	-	89	-	89	-	89	-	89			
837	-	16	-	92	-	153	-	323	-	366	-	399			
838	-	16	-	658	-	971	-	1,676	-	1,817	-	2,099			
839	-	16	-	283	-	409	-	677	-	756	-	850			
840	-	49	-	0	-	1	-	1	-	1	-	1			
841	-	19	-	1,067	-	1,623	-	2,779	-	3,052	-	3,446			
842	-	81	-	131	-	220	-	281	-	320	-	330			
843	-	50	-	458	-	781	-	1,366	-	1,529	-	1,559			
844	-	36	-	80	-	81	-	82	-	82	-	82			
845	-	16	-	146	-	241	-	471	-	441	-	469			
846	-	16	-	697	-	1,038	-	1,871	-	2,028	-	2,248			
847	-	16	-	275	-	394	-	700	-	870	-	890			
848	-	90	-	12	-	1	-	0	-	1	-	1			

TABLE 9. (Continued)

AIR CABLE ARCH AND BEAM VIBRATIONAL CASE 6 337006 1-22-71										RECTANGULAR ROSETTES				FINAL PRINT	
BASE NUM	SCAN 026	SCAN 028	SCAN 029	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD PSI	110 000	000 000	000 000												
.001	-	469	-	325	-	-	-	-	-	-	-	-	-	36	
.002	-	1,580	-	851	-	-	-	-	-	-	-	-	-	58	
.003	-	546	-	268	-	-	-	-	-	-	-	-	-	11	
.004	-	743	-	497	-	-	-	-	-	-	-	-	-	31	
.005	-	101	-	62	-	-	-	-	-	-	-	-	-	31	
.006	-	321	-	173	-	-	-	-	-	-	-	-	-	31	
.007	-	725	-	75	-	-	-	-	-	-	-	-	-	45	
.008	-	728	-	418	-	-	-	-	-	-	-	-	-	13	
.009	-	1,458	-	831	-	-	-	-	-	-	-	-	-	112	
.010	-	365	-	207	-	-	-	-	-	-	-	-	-	50	
.011	-	865	-	4	-	-	-	-	-	-	-	-	-	9	
.012	-	238	-	470	-	-	-	-	-	-	-	-	-	93	
.013	-	319	-	355	-	-	-	-	-	-	-	-	-	1	
.014	-	82	-	90	-	-	-	-	-	-	-	-	-	46	
.015	-	356	-	200	-	-	-	-	-	-	-	-	-	60	
.016	-	2,236	-	806	-	-	-	-	-	-	-	-	-	87	
.017	-	940	-	303	-	-	-	-	-	-	-	-	-	40	
.018	-	3	-	5	-	-	-	-	-	-	-	-	-	4	
.019	-	1,492	-	817	-	-	-	-	-	-	-	-	-	34	
.020	-	475	-	170	-	-	-	-	-	-	-	-	-	96	
.021	-	506	-	224	-	-	-	-	-	-	-	-	-	65	
.022	-	73	-	70	-	-	-	-	-	-	-	-	-	38	
.023	-	689	-	809	-	-	-	-	-	-	-	-	-	53	
.024	-	2,238	-	846	-	-	-	-	-	-	-	-	-	103	
.025	-	755	-	419	-	-	-	-	-	-	-	-	-	25	
.026	-	1	-	3	-	-	-	-	-	-	-	-	-	9	
.027	-	1,419	-	285	-	-	-	-	-	-	-	-	-	31	
.028	-	423	-	277	-	-	-	-	-	-	-	-	-	31	
.029	-	498	-	254	-	-	-	-	-	-	-	-	-	31	
.030	-	312	-	78	-	-	-	-	-	-	-	-	-	90	
.031	-	3,127	-	8,155	-	-	-	-	-	-	-	-	-	125	
.032	-	214	-	119	-	-	-	-	-	-	-	-	-	0	
.033	-	1,456	-	818	-	-	-	-	-	-	-	-	-	63	
.034	-	889	-	89	-	-	-	-	-	-	-	-	-	90	
.035	-	306	-	150	-	-	-	-	-	-	-	-	-	62	
.036	-	1,880	-	274	-	-	-	-	-	-	-	-	-	62	
.037	-	787	-	412	-	-	-	-	-	-	-	-	-	0	
.038	-	1	-	3	-	-	-	-	-	-	-	-	-	45	
.039	-	3,100	-	8,226	-	-	-	-	-	-	-	-	-	30	
.040	-	253	-	176	-	-	-	-	-	-	-	-	-	61	
.041	-	1,413	-	277	-	-	-	-	-	-	-	-	-	46	
.042	-	62	-	62	-	-	-	-	-	-	-	-	-	75	
.043	-	391	-	150	-	-	-	-	-	-	-	-	-	65	
.044	-	2,013	-	2,176	-	-	-	-	-	-	-	-	-	40	
.045	-	841	-	213	-	-	-	-	-	-	-	-	-	22	
.046	-	1	-	3	-	-	-	-	-	-	-	-	-	22	

TABLE 9. (Continued)

AIM CABLE ARCH AND BEAM SIMULTANEOUS CASE 6 337006 1-22-71											RECTANGULAR ROSETTES				FINAL PRINT	
CASE NUM	SCAN U14	SCAN U15	SCAN U16	SCAN U17	SCAN U19	SCAN U21	SCAN U22	SCAN U23	SCAN U24							
X LOAD PSI	000 000	030 000	040 000	060 000	080 000	100 000	110 000	120 000	125 000							
837	56	946	1,180	1,815	2,496	3,179	3,449	3,729	3,885							
838	24	297	506	871	1,157	1,442	1,547	1,735	1,767							
839	40	124	337	472	670	869	951	997	1,059							
840	51	17	19	18	17	18	17	17	18							
841	31	123	198	283	325	415	515	500	532							
842	31	123	292	535	793	945	1,046	1,218	1,251							
843	0	123	245	379	559	680	781	859	892							
845	45	25	24	24	25	24	25	25	24							
843	98	237	1,040	1,526	2,117	2,665	2,835	3,108	3,226							
844	27	413	459	660	913	1,082	1,193	1,327	1,365							
845	35	162	290	433	602	792	821	891	930							
846	32	75	84	80	81	80	81	81	81							
846	32	82	101	131	187	190	234	235	232							
847	124	451	398	650	937	1,184	1,203	1,357	1,392							
848	46	90	148	260	375	497	485	561	580							
849	60	37	16	38	17	17	18	16	16							
850	63	81	40	37	40	72	48	72	10							
850	0	19	71	162	196	290	361	353	448							
851	31	50	56	99	118	181	205	213	229							
852	45	9	4	9	2	1	0	1	8							
852	15	42	56	20	72	80	88	75	89							
853	110	177	149	270	290	392	431	481	495							
854	47	68	103	145	181	236	260	278	292							
855	45	18	2	6	1	0	1	4	2							
855	71	63	34	63	92	99	87	109	81							
856	40	52	96	156	154	193	181	203	237							
857	56	68	65	110	123	146	134	156	159							
858	49	63	52	56	65	63	70	70	74							
858	19	70	47	3	52	89	87	119	96							
859	81	70	47	153	177	121	181	212	158							
860	50	70	47	75	115	105	134	165	127							
861	54	58	90	81	82	84	88	89	86							

TABLE 9. (Concluded)

AIR CABLE ARCH AND BEAM SIMULTANEOUS CASE 6 337006 1-22-71										RECTANGULAR ROSETTES		FINAL PRINT	
GAGE NUM	SCAN 026	SCAN 028	SCAN 029	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD													
PSI	110	000	000	000	000	000	000	000	000	000	000	000	000
837	3,485	0,000	-	230									
838	1,543	073	-	11									
839	971	564	-	120									
840	18	15	-	6									
841	571	640	-	579									
842	1,102	546	-	45									
843	837	593	-	267									
844	-	25	-	22									
845	2,902	1,768	-	307									
846	1,220	192	-	193									
847	841	488	-	57									
848	-	81	-	62									
849	-	234	-	37									
850	-	1,233	-	150									
851	500	503	-	57									
852	17	14	-	28									
853	56	20	-	30									
854	337	199	-	61									
855	197	90	-	46									
856	1	8	-	30									
857	73	72	-	18									
858	417	328	-	138									
859	245	150	-	60									
860	9	2	-	33									
861	114	123	-	47									
862	176	123	-	47									
863	145	123	-	47									
864	70	65	-	45									
865	87	49	-	30									
866	181	111	-	61									
867	134	80	-	46									
868	89	84	-	60									

TABLE 10. TEST DATA, LOAD CASE 7

AIM CABLE ARCH AND BEAM SIMULATIONAL CASE 7 337008 1-22-71									
LOAD CELLS IN POUNDS			FINAL PRINT						
GAGE NUM	SCAN U44	SCAN U45	SCAN U46	SCAN U47	SCAN U49	SCAN U50	SCAN U51	SCAN U52	SCAN U53
% LOAD PSI	000 000	020 080	040 000	060 000	080 000	100 000	110 000	120 000	120 000
001	3	287	613	935	1,238	1,567	1,736	1,907	1,986
002	1	73	144	220	316	395	438	479	498
003	1	2	1	1	0	0	0	1	1
004	0	40	97	153	229	287	319	350	365
005	1	430	471	714	974	1,218	1,343	1,467	1,527
006	0	32	64	105	161	203	226	248	259
007	0	1	2	2	2	2	2	2	2
008	0	0	1	1	0	0	0	1	0
009	0	6	30	57	92	121	135	149	156
010	0	1	1	1	0	1	1	1	1

AIM CABLE ARCH AND BEAM SIMULATIONAL CASE 7 337008 1-22-71									
LOAD CELLS IN POUNDS			FINAL PRINT						
GAGE NUM	SCAN U54	SCAN U55	SCAN U56	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	110 000	080 000	000 000						
001	1,749	947	4						
002	440	253	1						
003	2	0	1						
004	329	167	0						
005	1,346	724	2						
006	229	124	1						
007	2	2	0						
008	0	0	0						
009	140	77	1						
010	1	0	0						

TABLE 10. (Continued)

AIM CABLE ARCH AND BEAM SIMULURAL CASE 7 337008 1-22-71										DISPLACEMENT PUTS			FINAL PRINT		
CASE NUM	SCAN 044	SCAN 045	SCAN 046	SCAN 047	SCAN 049	SCAN 050	SCAN 051	SCAN 052	SCAN 053						
% LOAD PSI	000 000	020 000	040 - 000	060 000	080 000	100 000	110 000	120 000	125 000						
101	0.0002	0.0073	0.0072	0.0073	0.0077	0.0166	0.0195	0.0207	0.0212						
102	0.0003	0.0079	0.0620	0.0978	0.1350	0.1729	0.1919	0.2121	0.2213						
103	0.0000	0.0073	0.0630	0.1004	0.1384	0.1784	0.1993	0.2199	0.2301						
104	-	0.0076	0.0611	0.0968	0.1340	0.1711	0.1906	0.2104	0.2198						
105	0.0002	0.0088	0.0646	0.1025	0.1434	0.1838	0.2048	0.2256	0.2357						
106	0.0000	0.0057	0.1244	0.1949	0.2726	0.3428	0.3799	0.4171	0.4349						
107	0.0000	0.0054	0.1229	0.1932	0.2702	0.3417	0.3783	0.4157	0.4337						
108	-	0.0036	0.1366	0.2102	0.2917	0.3669	0.4058	0.4447	0.4635						
109	0.0002	0.0039	0.0061	0.0171	0.0309	0.0436	0.0490	0.0547	0.0571						
110	0.0000	0.0046	0.0759	0.1187	0.1646	0.2064	0.2286	0.2510	0.2615						
111	0.0000	0.0064	0.0788	0.1221	0.1697	0.2121	0.2353	0.2581	0.2688						
112	-	0.0004	0.0099	0.0845	0.1816	0.2280	0.2524	0.2767	0.2886						
113	0.0002	0.0051	0.0128	0.0280	0.0487	0.0656	0.0735	0.0814	0.0846						
114	-	0.0006	-	0.0283	-	0.0651	-	0.1018	-						
115	0.0002	-	0.0286	-	0.0629	-	0.0891	-	0.1018						
116	-	0.0009	-	0.0175	-	0.0368	-	0.0525	-						
117	-	0.0003	0.0067	0.0375	0.0617	0.0799	0.0878	0.0966	0.1004						
118	-	0.0006	-	0.0254	-	0.0665	-	0.1036	-						
119	0.0002	-	0.0082	-	0.0326	-	0.0675	-	0.0776						
120	-	0.0003	-	0.0177	-	0.0406	-	0.0583	-						
121	-	0.0003	0.0026	0.0082	0.0379	0.0489	0.0544	0.0600	0.0620						
122	0.0000	0.0018	0.0097	0.0153	0.0270	0.0358	0.0399	0.0445	0.0459						
123	0.0000	-	0.0220	-	0.0539	-	0.0757	-	0.0865						
124	-	0.0002	-	0.0155	-	0.0326	-	0.0451	-						
125	0.0000	0.0023	0.0078	0.0177	0.0292	0.0376	0.0415	0.0456	0.0474						
126	-	0.0002	0.0004	0.0050	0.0094	0.0117	0.0133	0.0151	0.0153						
127	-	0.0002	-	0.0015	-	0.0096	-	0.0231	-						
128	-	0.0002	-	0.0013	-	0.0023	-	0.0025	-						
129	0.0002	-	0.0002	0.0071	0.0106	0.0131	0.0141	0.0159	0.0161						

TABLE 10. (Continued)

ALM CABLE ARCH AND BEAM SIMULATIONAL CASE 7 337008 1-22-71									
DISPLACEMENT PUTS		SCAN		SCAN		SCAN		SCAN	
GAME NUM	SCAN	U34	SCAN	U55	SCAN	U56	SCAN	U57	SCAN
% LOAD	110	000	000	000	000	000	000	000	000
PSI	000	000	000	000	000	000	000	000	000
101	0.0318	0.0456	0.0075						
102	0.1950	0.1040	0.0017						
103	0.2034	0.1065	0.0003						
104	0.1945	0.1025	0.0014						
105	0.2089	0.1107	0.0007						
106	0.3934	0.2185	0.0075						
107	0.3919	0.2164	0.0053						
108	0.4210	0.2379	0.0048						
109	0.0641	0.0530	0.0227						
110	0.2354	0.1431	0.0000						
111	0.2432	0.1449	0.0021						
112	0.2621	0.1884	0.0049						
113	0.0865	0.0710	0.0248						
114	0.0969	-	0.0246	-	0.0015				
115	0.0912	-	0.0465	-	0.0037				
116	0.0525	-	0.0187	-	0.0111				
117	0.1013	0.0408	0.0240						
118	0.1001	-	0.0272	-	0.0038				
119	0.0707	-	0.0358	-	0.0018				
120	0.0603	-	0.0471	-	0.0044				
121	0.0629	0.0515	0.0134						
122	0.0464	0.0372	0.0098						
123	0.0801	-	0.0470	-	0.0044				
124	0.0458	-	0.0192	-	0.0055				
125	0.0479	0.0387	0.0104						
126	0.0160	0.0137	0.0025						
127	0.0263	-	0.0181	-	0.0034				
128	0.0018	0.0025	0.0039						
129	0.0168	0.0148	0.0028						

TABLE 10. (Continued)

AIR CABLE ARCH AND BEAM SIMULTRAL CASE 7 337008 1-22-71										SINGLE STRAIN GAGES			FINAL PRINT		
GAGE NUM	SCAN 044	SCAN 045	SCAN 046	SCAN 047	SCAN 049	SCAN 050	SCAN 051	SCAN 052	SCAN 053						
% LOAD PSI	000 000	080 080	040 000	060 000	080 000	100 000	110 000	120 000	125 000						
201	42	167	398	649	900	1,193	1,318	1,482	1,506						
202	21	63	209	356	460	565	649	690	753						
203	21	63	167	293	398	502	544	649	670						
204	42	209	418	607	816	1,046	1,193	1,297	1,318						
205	21	167	251	398	544	649	649	774	816						
206	21	188	418	628	816	1,088	1,213	1,360	1,402						
207	42	251	502	753	1,172	1,465	1,674	1,799	1,883						
208	42	226	272	356	439	544	586	628	628						
209	0	209	356	544	711	900	941	1,025	1,109						
210	0	188	272	502	607	816	879	962	1,004						
211	21	126	293	523	690	879	983	1,067	1,109						
212	42	430	356	523	711	879	983	1,067	1,088						
213	84	405	251	377	481	628	732	774	795						
214	21	251	544	795	1,172	1,423	1,569	1,716	1,737						
215	21	272	460	670	900	1,193	1,255	1,402	1,485						
216	63	84	293	481	607	753	858	900	962						
217	21	42	84	146	272	335	377	377	418						
218	42	63	126	105	105	84	105	84	126						
219	0	63	188	293	356	439	460	523	565						
220	42	21	167	209	314	398	439	481	481						
221	21	167	377	586	774	962	1,088	1,109	1,234						
222	0	251	460	690	941	1,172	1,234	1,339	1,402						
223	84	42	126	293	398	544	607	670	753						
224	42	84	251	398	983	1,130	1,172	1,276	1,297						
225	63	84	0	63	42	0	63	42	21						
226	0	0	42	209	272	314	335	335	335						
227	21	84	209	188	314	481	544	607	628						
228	21	42	126	251	335	439	398	502	502						
229	21	42	21	21	21	42	42	63	63						
230	0	84	21	42	63	63	105	105	105						
231	42	21	42	0	42	63	63	63	105						
232	42	42	63	167	230	293	377	377	356						

TABLE 10. (Continued)

AIM CABLE ARCH AND BEAM SURVEILLANCE CASE 7 337008 1-22-71										SINGLE STRAIN GAGES				FINAL PRINT	
GAGE NUM	SCAN U54	SCAN U55	SCAN U56	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	110	000	000	000	000	000	000	000	000	000	000	000	000	000	000
PSI	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
201	-	1,339	-	970	-	21									
202	-	649	-	435	-	0									
203	-	544	-	230	-	21									
204	-	1,213	-	690	-	21									
205	-	732	-	377	-	42									
206	-	1,213	-	628	-	63									
207	-	1,674	-	900	-	63									
208	-	565	-	314	-	84									
209	-	1,025	-	628	-	0									
210	-	900	-	398	-	21									
211	-	941	-	460	-	21									
212	-	1,004	-	344	-	42									
213	-	690	-	314	-	21									
214	-	1,632	-	941	-	21									
215	-	1,339	-	774	-	21									
216	-	816	-	398	-	42									
217	-	377	-	126	-	0									
218	-	84	-	63	-	21									
219	-	502	-	314	-	21									
220	-	377	-	188	-	0									
221	-	1,046	-	628	-	21									
222	-	1,255	-	649	-	21									
223	-	628	-	335	-	42									
224	-	1,193	-	900	-	439									
225	-	42	-	0	-	63									
226	-	398	-	272	-	42									
227	-	523	-	251	-	0									
228	-	502	-	293	-	42									
229	-	21	-	21	-	21									
230	-	84	-	63	-	0									
231	-	42	-	42	-	42									
232	-	398	-	188	-	42									



TABLE 10. (Continued)

ALM CABLE ARCH AND BEAM DISTRIBUTIONAL CASE 7 337008 1-22-71										RECTANGULAR ROSETTES				FINAL PRINT	
GAGE NUM	SCAN 054	SCAN 055	SCAN 056	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	110	000	000	000	000	000	000	000	000	000	000	000	000	000	000
PSI	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
301	-	665	-	387	-	-	-	-	-	-	-	-	-	49	-
302	-	1,302	-	706	-	-	-	-	-	-	-	-	-	18	-
303	-	319	-	159	-	-	-	-	-	-	-	-	-	33	-
304	-	686	-	337	-	-	-	-	-	-	-	-	-	67	-
305	-	188	-	132	-	-	-	-	-	-	-	-	-	10	-
306	-	249	-	103	-	-	-	-	-	-	-	-	-	68	-
307	-	81	-	68	-	-	-	-	-	-	-	-	-	27	-
308	-	317	-	178	-	-	-	-	-	-	-	-	-	9	-
309	-	838	-	478	-	-	-	-	-	-	-	-	-	40	-
310	-	261	-	150	-	-	-	-	-	-	-	-	-	25	-
311	-	561	-	426	-	-	-	-	-	-	-	-	-	36	-
312	-	32	-	14	-	-	-	-	-	-	-	-	-	49	-
313	-	259	-	170	-	-	-	-	-	-	-	-	-	18	-
314	-	1,365	-	959	-	-	-	-	-	-	-	-	-	33	-
315	-	553	-	300	-	-	-	-	-	-	-	-	-	25	-
316	-	1,035	-	12	-	-	-	-	-	-	-	-	-	36	-
317	-	433	-	251	-	-	-	-	-	-	-	-	-	7	-
318	-	301	-	145	-	-	-	-	-	-	-	-	-	87	-
319	-	70	-	70	-	-	-	-	-	-	-	-	-	40	-
320	-	514	-	470	-	-	-	-	-	-	-	-	-	39	-
321	-	1,578	-	923	-	-	-	-	-	-	-	-	-	96	-
322	-	532	-	276	-	-	-	-	-	-	-	-	-	34	-
323	-	1,168	-	2	-	-	-	-	-	-	-	-	-	65	-
324	-	394	-	499	-	-	-	-	-	-	-	-	-	38	-
325	-	387	-	169	-	-	-	-	-	-	-	-	-	78	-
326	-	77	-	79	-	-	-	-	-	-	-	-	-	47	-
327	-	2,241	-	8,410	-	-	-	-	-	-	-	-	-	16	-
328	-	194	-	102	-	-	-	-	-	-	-	-	-	90	-
329	-	1,024	-	554	-	-	-	-	-	-	-	-	-	63	-
330	-	89	-	87	-	-	-	-	-	-	-	-	-	0	-
331	-	241	-	192	-	-	-	-	-	-	-	-	-	0	-
332	-	1,352	-	776	-	-	-	-	-	-	-	-	-	16	-
333	-	555	-	292	-	-	-	-	-	-	-	-	-	78	-
334	-	6	-	2	-	-	-	-	-	-	-	-	-	47	-
335	-	2,460	-	8,364	-	-	-	-	-	-	-	-	-	0	-
336	-	319	-	166	-	-	-	-	-	-	-	-	-	53	-
337	-	1,070	-	599	-	-	-	-	-	-	-	-	-	9	-
338	-	86	-	85	-	-	-	-	-	-	-	-	-	22	-
339	-	268	-	129	-	-	-	-	-	-	-	-	-	67	-
340	-	1,450	-	776	-	-	-	-	-	-	-	-	-	22	-
341	-	591	-	323	-	-	-	-	-	-	-	-	-	72	-
342	-	2	-	2	-	-	-	-	-	-	-	-	-	25	-
343	-	2	-	2	-	-	-	-	-	-	-	-	-	9	-

TABLE 10. (Continued)

AIR CABLE ARCH AND BEAM STRUCTURAL CASE 7 337008 1-22-71										RECTANGULAR ROSETTES				FINAL PRINT	
GAGE NUM	SCAN 044	SCAN 045	SCAN 046	SCAN 047	SCAN 049	SCAN 050	SCAN 051	SCAN 052	SCAN 053						
X LOAD PSI	000 000	080 000	040 000	060 000	080 000	100 000	110 000	120 000	122 000						
837	72	245	537	869	1,179	1,502	1,649	1,770	1,836						
838	22	67	244	349	445	559	661	697	693						
839	25	89	146	260	367	472	494	537	571						
840	-	54	22	18	22	18	19	20	19						
841	102	105	102	178	417	485	520	484	529						
842	-	9	-	272	-	423	-	515	-						
843	56	90	133	225	370	454	504	500	529						
844	-	22	-	27	-	28	-	28	-						
845	46	110	288	536	752	923	966	1,121	1,195						
846	-	141	56	120	153	170	220	284	304						
847	47	79	116	208	300	376	373	419	445						
848	42	90	76	75	-	77	-	76	-						
849	35	27	7	8	-	2	-	15	-						
850	-	4	-	133	-	212	-	337	-						
851	35	11	40	70	103	127	165	186	159						
852	58	67	6	13	16	15	13	14	10						
853	40	16	44	22	13	15	-	67	-						
854	-	78	-	72	-	235	-	277	-						
855	25	47	44	25	80	110	94	105	103						
856	54	45	22	9	-	0	-	-	2						
857	143	96	162	172	190	333	348	385	389						
858	-	18	-	15	28	23	58	83	48						
859	80	65	99	79	61	180	145	151	170						
860	-	39	-	54	-	57	-	59	-						
861	47	4	56	30	13	79	96	74	43						
862	15	66	24	61	-	79	-	105	-						
863	16	35	40	46	60	79	112	90	137						
864	90	77	51	60	78	72	65	71	71						
865	-	56	96	59	-	74	43	134	141						
866	-	40	-	90	-	137	-	134	-						
867	25	40	65	75	44	106	90	134	141						
868	-	51	-	54	-	58	-	55	-						

TABLE 10. (Concluded)

AIM CABLE ARCH AND BEAM BENDING CASE 7 337008 1-22-71										RECTANGULAR ROSETTES				FINAL PRINT	
GAGE NUM	SCAN 054	SCAN 055	SCAN 056	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	110 000	000 000	000 000	000 000	000 000	000 000	000 000	000 000	000 000	000 000	000 000	000 000	000 000	000 000	000 000
337	1,703	989	-	9	-	-	-	-	-	-	-	-	-	-	-
338	671	448	-	40	-	-	-	-	-	-	-	-	-	-	-
339	516	271	-	25	-	-	-	-	-	-	-	-	-	-	-
340	19	18	-	36	-	-	-	-	-	-	-	-	-	-	-
341	599	205	-	423	-	-	-	-	-	-	-	-	-	-	-
342	474	324	-	45	-	-	-	-	-	-	-	-	-	-	-
343	537	364	-	189	-	-	-	-	-	-	-	-	-	-	-
344	29	29	-	22	-	-	-	-	-	-	-	-	-	-	-
345	1,084	286	-	38	-	-	-	-	-	-	-	-	-	-	-
346	259	164	-	118	-	-	-	-	-	-	-	-	-	-	-
347	413	211	-	40	-	-	-	-	-	-	-	-	-	-	-
348	75	77	-	51	-	-	-	-	-	-	-	-	-	-	-
349	27	16	-	24	-	-	-	-	-	-	-	-	-	-	-
350	316	143	-	56	-	-	-	-	-	-	-	-	-	-	-
351	145	80	-	40	-	-	-	-	-	-	-	-	-	-	-
352	11	6	-	39	-	-	-	-	-	-	-	-	-	-	-
353	67	35	-	9	-	-	-	-	-	-	-	-	-	-	-
354	277	184	-	53	-	-	-	-	-	-	-	-	-	-	-
355	105	75	-	22	-	-	-	-	-	-	-	-	-	-	-
356	6	9	-	22	-	-	-	-	-	-	-	-	-	-	-
357	362	271	-	81	-	-	-	-	-	-	-	-	-	-	-
358	44	42	-	19	-	-	-	-	-	-	-	-	-	-	-
359	159	115	-	50	-	-	-	-	-	-	-	-	-	-	-
360	61	53	-	54	-	-	-	-	-	-	-	-	-	-	-
361	39	16	-	9	-	-	-	-	-	-	-	-	-	-	-
362	102	78	-	40	-	-	-	-	-	-	-	-	-	-	-
363	70	47	-	25	-	-	-	-	-	-	-	-	-	-	-
364	77	90	-	81	-	-	-	-	-	-	-	-	-	-	-
365	134	52	-	15	-	-	-	-	-	-	-	-	-	-	-
366	134	83	-	47	-	-	-	-	-	-	-	-	-	-	-
367	134	68	-	16	-	-	-	-	-	-	-	-	-	-	-
368	52	63	-	0	-	-	-	-	-	-	-	-	-	-	-

TABLE 11. TEST DATA, LOAD CASE 8.

A1M CABLE ARCH AND BEAM SIMULATIONAL CASE 8 337007 1-22-71									
LOAD CELLS IN POUNDS FINAL PRINT									
CASE NUM	SCAN U30	SCAN U31	SCAN U32	SCAN U33	SCAN U35	SCAN U36	SCAN U37	SCAN U38	SCAN U39
X LOAD	000	000	040	060	080	100	110	120	125
PSI	000	000	000	000	000	000	000	000	000
001	-	1	362	748	1,114	1,484	1,873	2,062	2,257
002	-	0	0	1	0	0	0	0	0
003	-	1	5	2	1	1	2	2	2
004	0	52	121	188	279	350	382	418	436
005	1	476	561	847	1,178	1,475	1,618	1,769	1,832
006	0	0	0	0	0	0	1	1	1
007	0	0	2	2	1	2	2	2	2
008	0	0	0	0	0	1	0	0	0
009	0	0	0	0	0	0	0	0	0
010	0	1	0	0	0	1	1	0	0

A1M CABLE ARCH AND BEAM SIMULATIONAL CASE 8 337007 1-22-71									
LOAD CELLS IN POUNDS FINAL PRINT									
CASE NUM	SCAN U41	SCAN U42	SCAN U43	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
X LOAD	110	080	000						
PSI	000	080	000						
001	2,113	8,177	4						
002	0	0	1						
003	3	1	2						
004	391	418	2						
005	1,643	890	5						
006	0	0	0						
007	2	0	3						
008	0	1	0						
009	0	0	0						
010	1	1	1						

TABLE 11. (Continued)

AIM CABLE ARCH AND BEAM STRUCTURAL CASE 8 337007 1-22-71										DISPLACEMENT POTTS				FINAL PRINT		
GAGE NUM	SCAN 030	SCAN 031	SCAN 032	SCAN 033	SCAN 035	SCAN 036	SCAN 037	SCAN 038	SCAN 039							
% LOAD	000	080	040	060	080	100	110	120	125							
PSI	000	080	000	000	000	000	000	000	000							
101	-	0.0002	0.0019	0.0012	-	0.0002	-	0.0039	-	0.0065	-	0.0084	-	0.0099	-	0.0106
102	0.0000	0.0346	0.0771	0.1194	0.1648	0.2093	0.2311	0.2561	0.2679							
103	0.0000	0.0354	0.0798	0.1242	0.1726	0.2185	0.2408	0.2666	0.2788							
104	0.0004	0.0333	0.0754	0.1163	0.1609	0.2041	0.2253	0.2497	0.2614							
105	0.0000	0.0355	0.0796	0.1247	0.1729	0.2198	0.2428	0.2691	0.2817							
106	-	0.0003	0.0750	0.1609	0.2451	0.3320	0.4281	0.5213	0.5469							
107	0.0003	0.0721	0.1545	0.2362	0.3297	0.4129	0.4510	0.5033	0.5284							
108	0.0000	0.0796	0.1663	0.2518	0.3393	0.4355	0.4731	0.5135	0.5323							
109	0.0005	0.0805	0.0009	0.0007	0.0009	0.0000	0.0002	0.0000	0.0000							
110	0.0000	0.0473	0.0995	0.1515	0.2114	0.2646	0.2895	0.3214	0.3368							
111	0.0004	0.0467	0.0977	0.1479	0.2056	0.2566	0.2800	0.3116	0.3268							
112	0.0000	0.0480	0.0995	0.1511	0.2099	0.2628	0.2861	0.3190	0.3339							
113	0.0000	0.0000	-	0.0007	-	0.0063	-	0.0102	-	0.0100	-	0.0109	-	0.0109	-	
114	-	0.0012	-	0.0268	-	0.0420	-	0.0601	-	0.0764	-	0.0849	-	0.0929	-	
115	0.0000	-	0.0119	-	0.0514	-	0.0936	-	0.1136	0.0936	-	0.1031	-	0.1187	-	
116	-	0.0009	-	0.0082	-	0.0411	-	0.0595	-	0.0753	-	0.0829	-	0.0919	-	
117	0.0003	0.0012	0.0000	0.0006	0.0006	-	0.0009	-	0.0038	-	0.0029	-	0.0035	-	0.0066	
118	0.0000	-	0.0096	-	0.0423	-	0.0681	-	0.0931	0.0764	-	0.0840	-	0.0931	-	
119	0.0000	-	0.0080	-	0.0376	-	0.0540	-	0.0753	0.0691	-	0.0753	-	0.0844	-	
120	0.0000	-	0.0088	-	0.0427	-	0.0612	-	0.0839	0.0771	-	0.0839	-	0.0948	-	
121	0.0009	0.0003	0.0006	0.0003	0.0006	-	0.0009	-	0.0038	0.0009	-	0.0023	-	0.0038	-	
122	0.0002	0.0002	0.0002	0.0004	0.0004	0.0002	0.0011	0.0016	0.0014	-	-	-	-	-	-	
123	0.0000	-	0.0087	-	0.0330	-	0.0587	-	0.0711	0.0587	-	0.0645	-	0.0711	-	
124	-	0.0004	-	0.0076	-	0.0352	-	0.0500	-	0.0627	-	0.0685	-	0.0768	-	
125	0.0000	-	0.0002	-	0.0007	-	0.0004	-	0.0012	0.0005	-	0.0009	-	0.0012	-	
126	0.0004	0.0002	0.0002	0.0004	0.0014	0.0020	0.0023	0.0025	0.0027	0.0020	-	0.0023	-	0.0025	-	
127	0.0002	0.0015	-	0.0043	-	0.0070	-	0.0085	-	0.0085	-	0.0096	-	0.0102	-	
128	0.0000	-	0.0007	-	0.0070	-	0.0098	-	0.0161	0.0125	-	0.0134	-	0.0161	-	
129	-	0.0002	-	0.0014	-	0.0023	-	0.0002	-	0.0002	-	0.0004	-	0.0007	-	

TABLE 11. (Continued)

ALM CABLE ARCH AND BEAM SIMULATIONAL CASE 8 337007 1-22-71										DISPLACEMENT POTS		FINAL PRINT	
GAGE NUM	SCAN 041	SCAN 042	SCAN 043	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	110	000	000										
PSI	000	000	000										
101	-	0.0130	-	0.0128	-	0.0027							
102	0.02412	0.01427	0.0041										
103	0.02533	0.01317	0.0052										
104	0.02359	0.01402	0.0041										
105	0.02553	0.01221	0.0046										
106	0.02186	0.03481	0.0366										
107	0.05011	0.03157	0.0347										
108	0.05051	0.03138	0.0123										
109	-	0.0137	-	0.0143	-	0.0096							
110	0.03177	0.01974	0.0193										
111	0.03086	0.01930	0.0194										
112	0.03164	0.01978	0.0197										
113	-	0.0142	-	0.0128	-	0.0076							
114	-	0.0896	-	0.0099	-	0.0029							
115	-	0.01092	-	0.0007	-	0.0021							
116	-	0.0867	-	0.0452	-	0.0050							
117	-	0.0041	-	0.0015	-	0.0035							
118	-	0.0910	-	0.0066	-	0.0015							
119	-	0.0820	-	0.0003	-	0.0002							
120	-	0.0915	-	0.0050	-	0.0006							
121	-	0.0052	-	0.0044	-	0.0032							
122	-	0.0023	-	0.0021	-	0.0025							
123	-	0.00716	-	0.0054	-	0.0012							
124	-	0.0749	-	0.0051	-	0.0002							
125	-	0.0019	-	0.0014	-	0.0016							
126	-	0.0029	-	0.0014	-	0.0005							
127	-	0.0113	-	0.0102	-	0.0017							
128	-	0.0161	-	0.0115	-	0.0007							
129	-	0.0005	-	0.0011	-	0.0005							

TABLE 11. (Continued)

A1M CABLE ARCH AND BEAM SIMULATIONAL CASE 6 337007 1-22-71										SINGLE STRAIN GAGES				FINAL PRINT	
GAGE NUM	SCAN 030	SCAN 031	SCAN 032	SCAN 033	SCAN 035	SCAN 036	SCAN 037	SCAN 038	SCAN 039						
% LOAD	000	080	040	060	080	100	110	120	125						
PSI	000	080	000	000	000	000	000	000	000						
201	-	21	-	230	-	481	-	711	-	983	-	1,213	-	1,360	-
202	-	21	-	126	-	356	-	584	-	795	-	941	-	1,088	-
203	-	21	-	188	-	356	-	481	-	711	-	837	-	921	-
204	-	42	-	188	-	377	-	628	-	837	-	1,067	-	1,191	-
205	-	21	-	209	-	439	-	649	-	879	-	1,025	-	1,172	-
206	-	84	-	209	-	502	-	607	-	962	-	1,193	-	1,318	-
207	-	42	-	209	-	502	-	732	-	1,004	-	1,318	-	1,463	-
208	-	21	-	209	-	460	-	649	-	879	-	1,172	-	1,381	-
209	-	21	-	188	-	314	-	460	-	628	-	795	-	837	-
210	-	21	-	188	-	439	-	649	-	879	-	1,067	-	1,172	-
211	-	21	-	230	-	502	-	732	-	983	-	1,234	-	1,381	-
212	-	21	-	146	-	356	-	523	-	732	-	879	-	983	-
213	-	21	-	230	-	481	-	711	-	1,025	-	1,276	-	1,423	-
214	-	21	-	272	-	460	-	670	-	879	-	1,130	-	1,213	-
215	-	21	-	167	-	418	-	586	-	795	-	962	-	1,067	-
216	-	21	-	230	-	439	-	711	-	900	-	1,172	-	1,276	-
217	-	0	-	21	-	63	-	63	-	146	-	188	-	230	-
218	-	0	-	205	-	188	-	272	-	335	-	377	-	439	-
219	-	42	-	126	-	251	-	314	-	439	-	565	-	628	-
220	-	21	-	167	-	167	-	272	-	356	-	439	-	439	-
221	-	21	-	293	-	481	-	753	-	983	-	1,234	-	1,339	-
222	-	0	-	230	-	502	-	753	-	1,025	-	1,255	-	1,339	-
223	-	21	-	146	-	314	-	481	-	628	-	816	-	941	-
224	-	84	-	105	-	272	-	356	-	523	-	649	-	774	-
225	-	63	-	21	-	42	-	63	-	188	-	209	-	230	-
226	-	0	-	84	-	126	-	209	-	209	-	293	-	293	-
227	-	21	-	42	-	105	-	105	-	105	-	188	-	209	-
228	-	21	-	21	-	42	-	126	-	209	-	272	-	293	-
229	-	0	-	21	-	21	-	42	-	105	-	105	-	105	-
230	-	42	-	0	-	21	-	0	-	21	-	21	-	42	-
231	-	21	-	21	-	42	-	42	-	42	-	42	-	63	-
232	-	42	-	21	-	63	-	42	-	105	-	126	-	126	-

TABLE 11. (Continued)

AIR CABLE ARCH AND BEAM SIMULTANEOUS CASE 8 337007 1-22-71										SINGLE STRAIN GAGES		FINAL PRINT	
GAGE NUM	SCAN 041	SCAN 042	SCAN 043	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	110 000	000 000	000 000										
201	-	1,381	-	753	0								
202	-	1,088	-	765	0								
203	-	1,983	-	786	-	63							
204	-	1,193	-	628	-	42							
205	-	1,193	-	732	-	63							
206	-	1,297	-	732	21								
207	-	1,506	-	616	42								
208	-	1,255	-	732	0								
209	-	921	-	523	-	42							
210	-	1,234	-	690	21								
211	-	1,381	-	616	42								
212	-	1,004	-	607	84								
213	-	1,381	-	795	0								
214	-	1,276	-	711	42								
215	-	1,172	-	690	21								
216	-	1,316	-	711	0								
217	-	126	-	63	42								
218	-	314	-	167	63								
219	-	566	-	293	42								
220	-	335	-	167	63								
221	-	1,381	-	616	42								
222	-	1,423	-	616	0								
223	-	941	-	544	42								
224	-	858	-	481	21								
225	-	209	-	167	0								
226	-	272	-	54	21								
227	-	167	-	0	21								
228	-	272	-	231	63								
229	-	109	-	42	0								
230	-	0	-	84	21								
231	-	63	-	21	21								
232	-	126	-	105	21								



TABLE 11. (Continued)

ALN CABLE ARCH AND BEAM SIMULIAR CASE 8 337007 1-22-71										RECTANGULAR ROSETTES		FINAL PRINT	
GAUGE NUM	SCAN U41	SCAN U42	SCAN U43	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD PSI	110 000	000 000	000 000										
801	-	410	-	416	-	58							
802	-	1,245	-	558	-	34							
803	-	418	-	221	-	11							
804	-	700	-	2	-	67							
805	-	18	-	93	-	18							
806	-	341	-	414	-	33							
807	-	731	-	440	-	34							
808	-	1,267	-	715	-	96							
809	-	268	-	138	-	65							
810	-	787	-	15	-	52							
811	-	275	-	354	-	71							
812	-	256	-	115	-	56							
813	-	85	-	82	-	41							
814	-	1,713	-	772	-	40							
815	-	683	-	378	-	25							
816	-	1,312	-	8	-	81							
817	-	500	-	380	-	80							
818	-	406	-	229	-	13							
819	-	63	-	60	-	33							
820	-	651	-	425	-	23							
821	-	1,910	-	955	-	4							
822	-	630	-	115	-	11							
823	-	1,272	-	6	-	67							
824	-	446	-	741	-	9							
825	-	413	-	352	-	53							
826	-	73	-	194	-	22							
827	-	2,783	-	77	-	23							
828	-	90	-	872	-	98							
829	-	1,346	-	46	-	27							
830	-	87	-	413	-	35							
831	-	273	-	88	-	77							
832	-	1,569	-	92	-	115							
833	-	648	-	392	-	21							
834	-	5	-	5	-	68							
835	-	2,937	-	1,894	-	18							
836	-	403	-	274	-	87							
837	-	1,266	-	710	-	7							
838	-	86	-	85	-	40							
839	-	266	-	97	-	84							
840	-	1,764	-	2,030	-	76							
841	-	1,749	-	437	-	44							
842	-	2	-	5	-	60							
843	-	12	-	12	-	12							

TABLE 11. (Continued)

ALM CABLE ARCH AND BEAM SINGULAR CASE 8 337007 1-22-71										RECTANGULAR ROSETTES FINAL PRINT			
GAGE NUM	SCAN 030	SCAN 031	SCAN 032	SCAN 033	SCAN 035	SCAN 036	SCAN 037	SCAN 038	SCAN 039				
% LOAD PSI	000	000	040 000	060 000	080 000	100 000	110 000	120 000	125 000				
337	66	453	656	963	1,389	1,678	1,797	2,019	2,064				
338	4	91	187	317	454	632	639	729	684				
339	35	81	235	323	467	523	579	645	690				
340	58	15	25	84	23	22	21	22	23				
341	24	7	99	52	58	43	48	102	170				
342	56	87	213	354	433	542	579	633	638				
343	40	40	57	151	246	293	313	368	404				
344	51	39	17	31	25	27	26	24	26				
345	28	227	504	700	999	1,338	1,419	1,603	1,604				
346	121	116	183	206	312	442	454	489	519				
347	75	56	160	247	344	448	483	557	542				
348	94	86	84	85	82	79	80	81	82				
349	78	15	55	65	17	36	108	81	50				
350	16	110	257	341	420	495	642	637	606				
351	47	47	101	138	201	229	267	278	278				
352	45	0	19	15	19	15	22	14	14				
353	2	1	22	22	24	40	31	44	49				
354	127	93	72	22	56	71	76	76	111				
355	65	46	25	22	40	56	31	60	80				
356	38	30	36	22	51	41	45	33	39				
357	27	47	66	40	81	138	110	137	146				
358	4	15	4	9	19	18	15	43	10				
359	11	16	35	25	50	60	47	90	68				
360	67	0	13	9	9	12	0	8	18				
361	49	56	4	19	13	22	22	53	22				
362	18	24	27	47	80	72	72	103	72				
363	33	40	11	16	33	25	25	25	25				
364	22	6	23	45	67	81	81	81	54				
365	134	24	121	98	105	184	167	171	150				
366	22	56	28	36	74	91	104	78	118				
367	56	40	75	67	90	138	135	124	134				
368	41	84	54	67	64	60	63	62	65				

TABLE 11. (Concluded)

A1M CABLE ARCH AND BEAM SINGULAR CASE 8 337007 1-22-71										RECTANGULAR ROSETTES		FINAL PRINT	
BASE NUM	SCAN 041	SCAN 042	SCAN 043	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN	SCAN
% LOAD	110	000	000	000									
PSI	000	000	000	000									
337	1,986	1,244	-	102									
338	762	442	-	9									
339	612	401	-	56									
340	23	24	-	41									
341	214	444	-	234									
342	588	338	-	47									
343	401	291	-	141									
344	24	26	-	32									
345	1,471	974	-	87									
346	496	337	-	56									
347	488	319	-	71									
348	81	80	-	48									
349	29	22	-	9									
350	596	384	-	53									
351	284	181	-	22									
352	17	17	-	22									
353	68	18	-	32									
354	131	138	-	124									
355	99	60	-	46									
356	36	33	-	30									
357	177	110	-	72									
358	52	47	-	22									
359	115	79	-	25									
360	8	18	-	36									
361	27	9	-	40									
362	94	53	-	71									
363	35	22	-	56									
364	77	67	-	22									
365	207	163	-	87									
366	83	38	-	7									
367	145	101	-	40									
368	70	64	-	51									

TABLE 12. TEST DATA, CABLE-ARCH LOAD DEFLECTION TESTS, HORIZONTAL LOAD

Load, lbs	Dial Indicator Reading			Net Deflection, in. <sup>a</sup>		
	1	2	3	1	2	3
0	538	522	533	+0.074	+0.074	+0.001
+5	464	448	532	+0.123	+0.124	+0.001
+10	415	398	532	+0.165	+0.165	+0.001
+15	373	357	532	+0.286	+0.288	+0.003
+20	252	234	529	+0.280	+0.283	+0.003
+15	258	239	529	+0.183	+0.182	+0.001
+10	355	340	532	+0.148	+0.149	+0.001
+5	390	373	532	+0.069	+0.071	+0.001
+0	469	451	532	-0.013	-0.016	0.000
-5	551	538	533	-0.059	-0.061	-0.001
-10	597	583	534	-0.125	-0.127	-0.002
-15	663	649	535	-0.192	-0.196	-0.006
-20	730	718	539	-0.189	-0.193	-0.006
-15	727	715	539	-0.132	-0.137	-0.003
-10	670	659	536	-0.065	-0.070	-0.001
-5	603	592	534	-0.026	-0.030	+0.001
0	564	552	532			

a. Referenced to initial zero

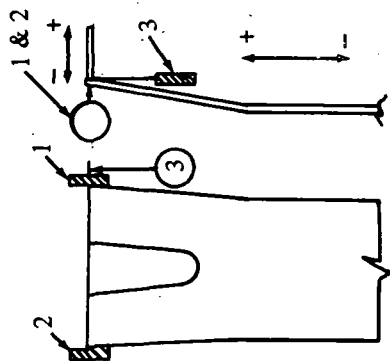
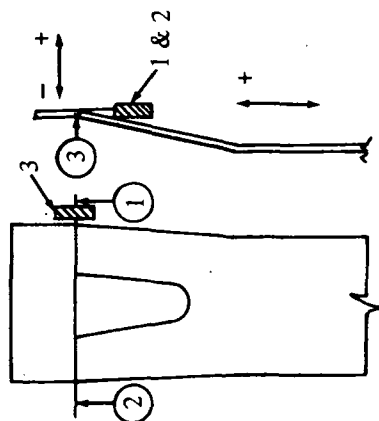
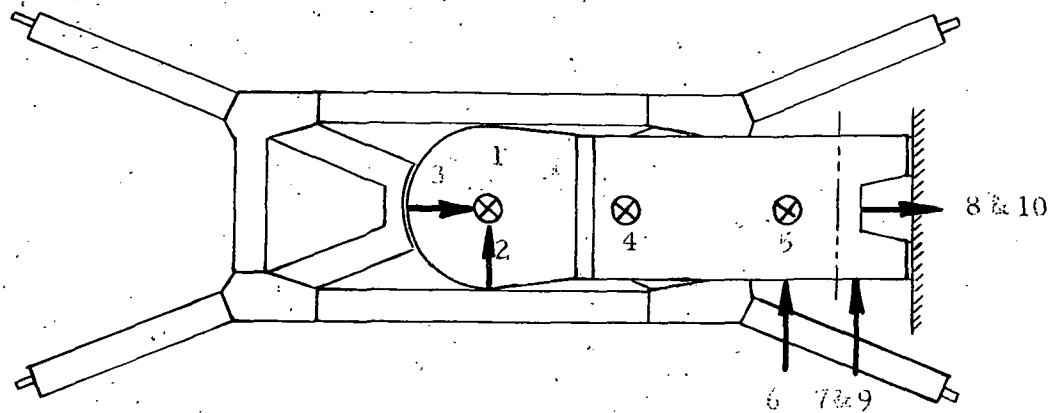


TABLE 13. TEST DATA, CABLE-ARCH LOAD DEFLECTION TESTS, VERTICAL LOAD

Load, lbs	Dial Indicator Reading			Net Deflection, in. <sup>a</sup>		
	1	2	3	1	2	3
0	505	577	806	—	—	—
-25	578	650	806	-0.073	-0.073	0.000
-50	702	773	803	-0.197	-0.196	+0.003
-75	837	910	800	-0.332	-0.333	+0.006
-50	777	849	799	-0.272	-0.272	+0.007
-25	652	724	805	-0.147	-0.147	+0.001
0	524	595	806	-0.019	-0.018	0.000
+25	406	475	815	+0.099	+0.102	-0.009
+50	284	355	816	+0.221	+0.222	-0.010
+75	185	259	817	+0.320	+0.318	-0.011
+50	228	301	817	+0.277	+0.276	-0.011
+25	340	415	813	+0.165	+0.162	-0.007
0	469	542	809	+0.036	+0.035	-0.003
-25	572	645	807	-0.067	-0.068	-0.001
0	506	579	806	-0.001	-0.002	0.000

a. Referenced to initial zero





NOTE: Arrows indicate directions for positive loads.

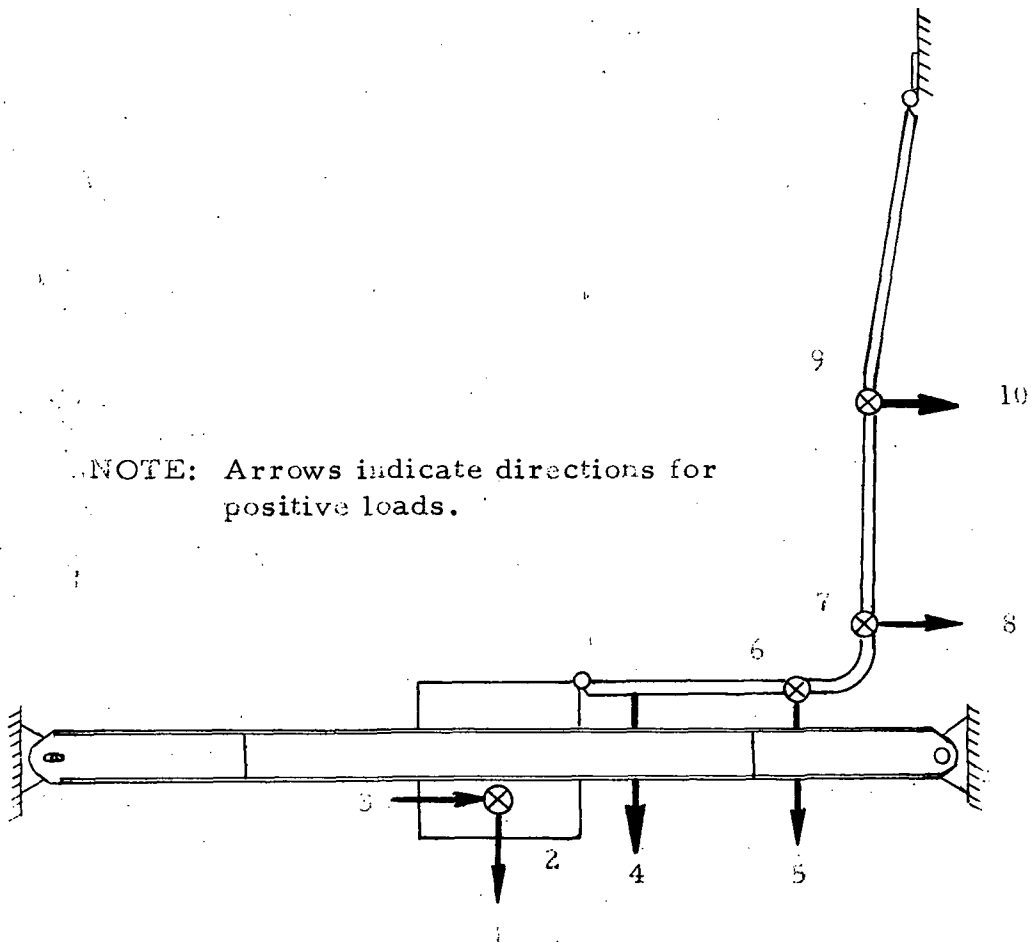


Figure 1. Hydraulic cylinder and load cell locations.

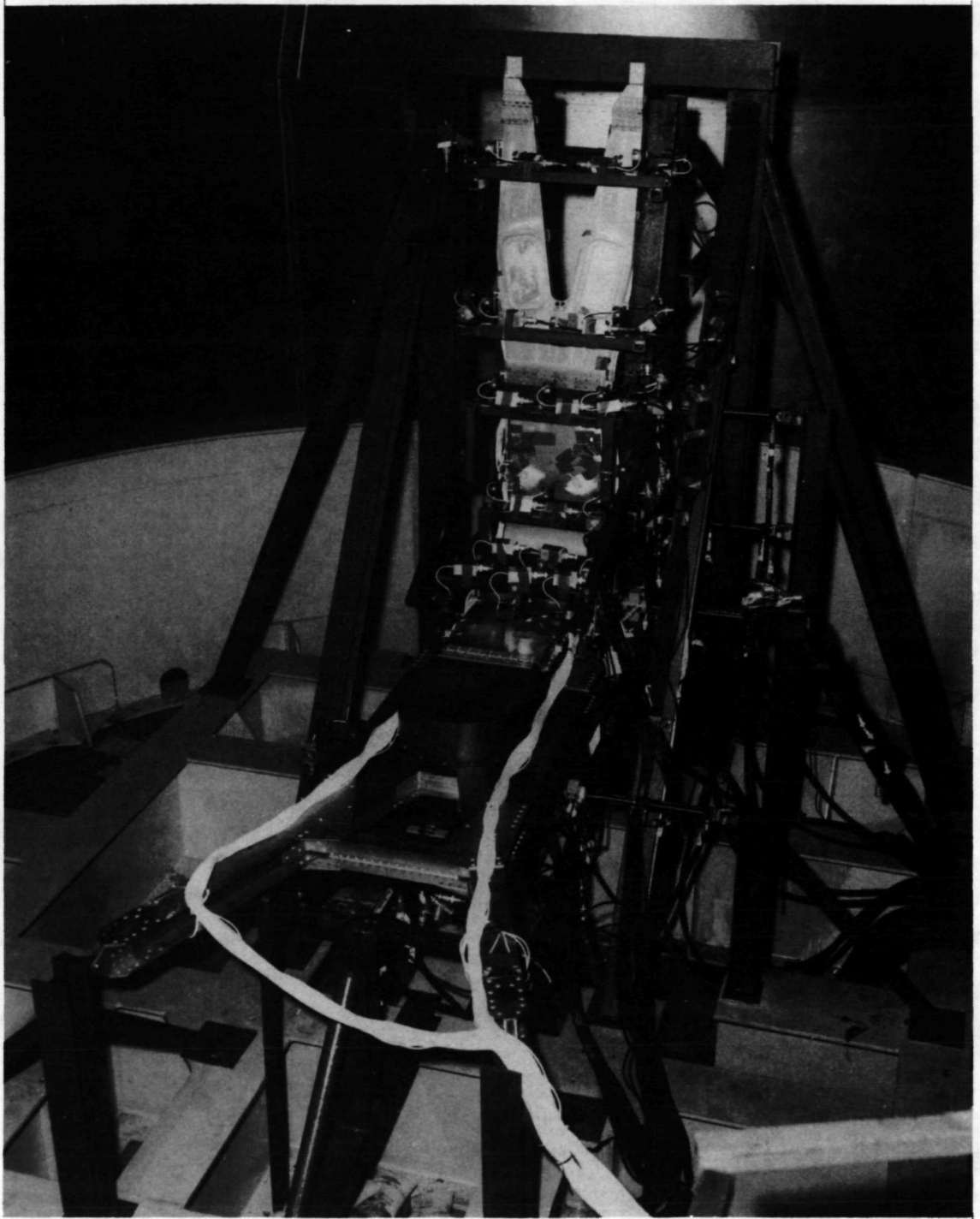


Figure 2. Test setup, overall view.

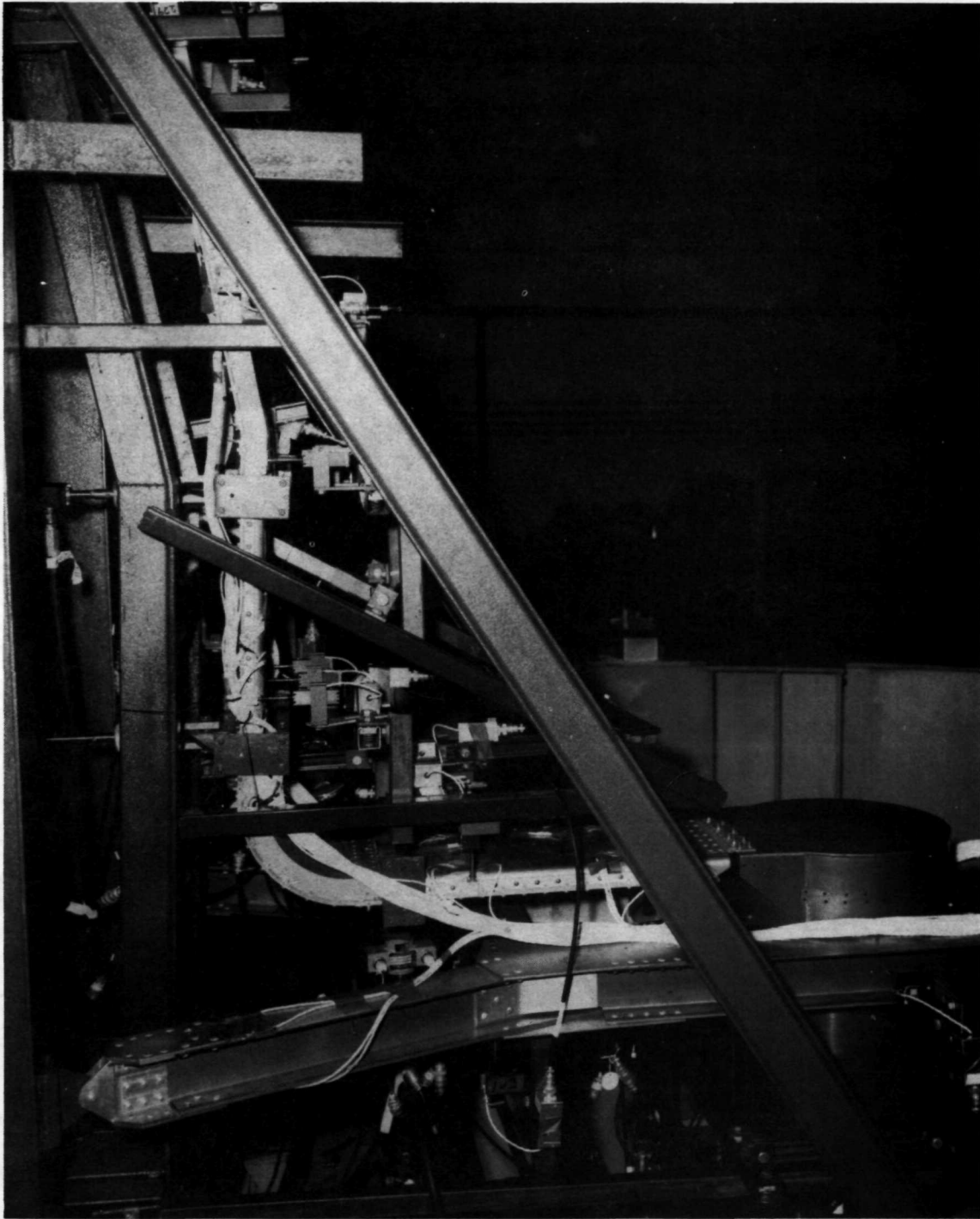


Figure 3. Test setup, side view.



Figure 4. Test setup, view from outboard side.

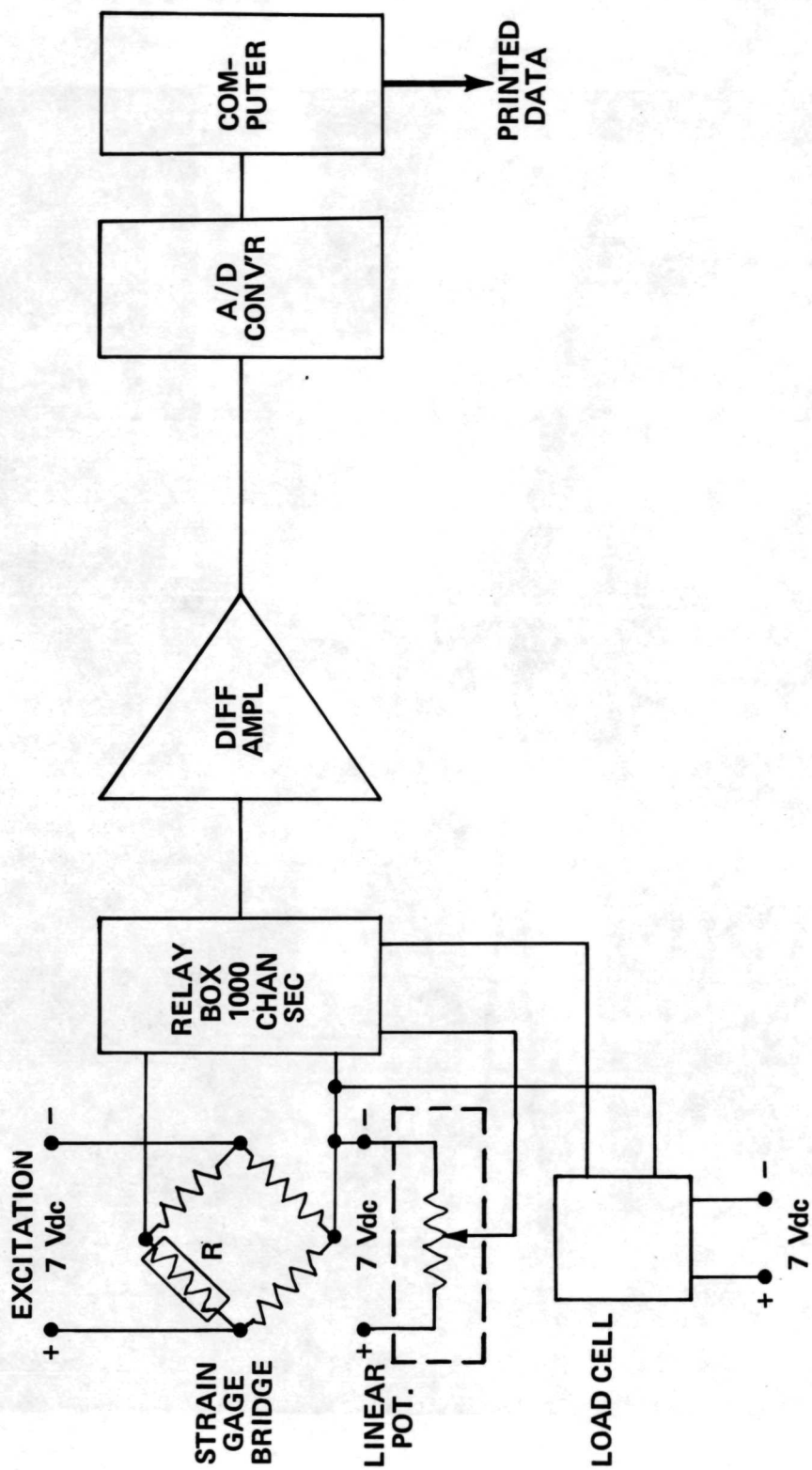


Figure 5. Data system block diagram.

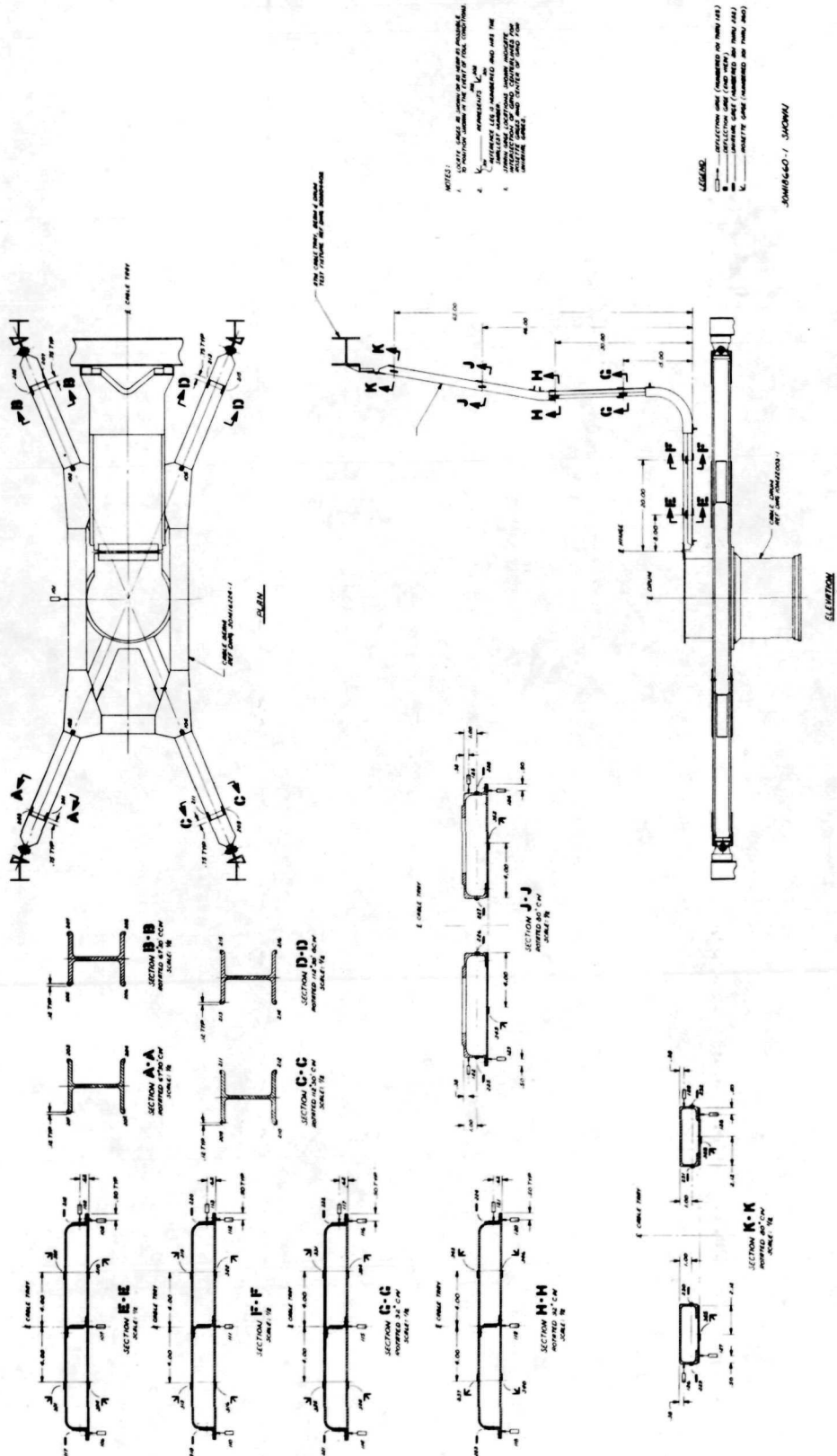


Figure 6. Instrumentation drawing.

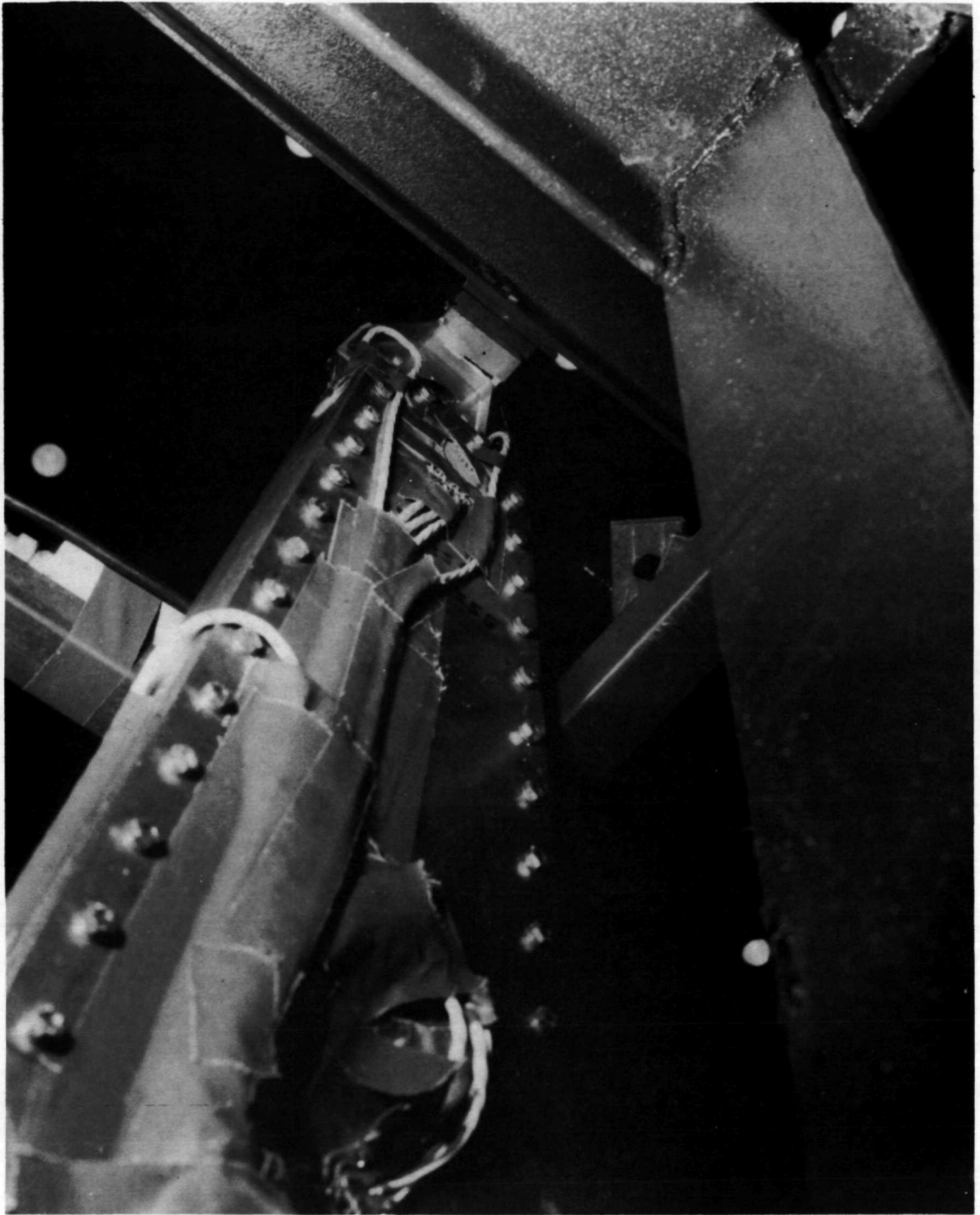


Figure 7. Fitting failure, Case 4, first run.

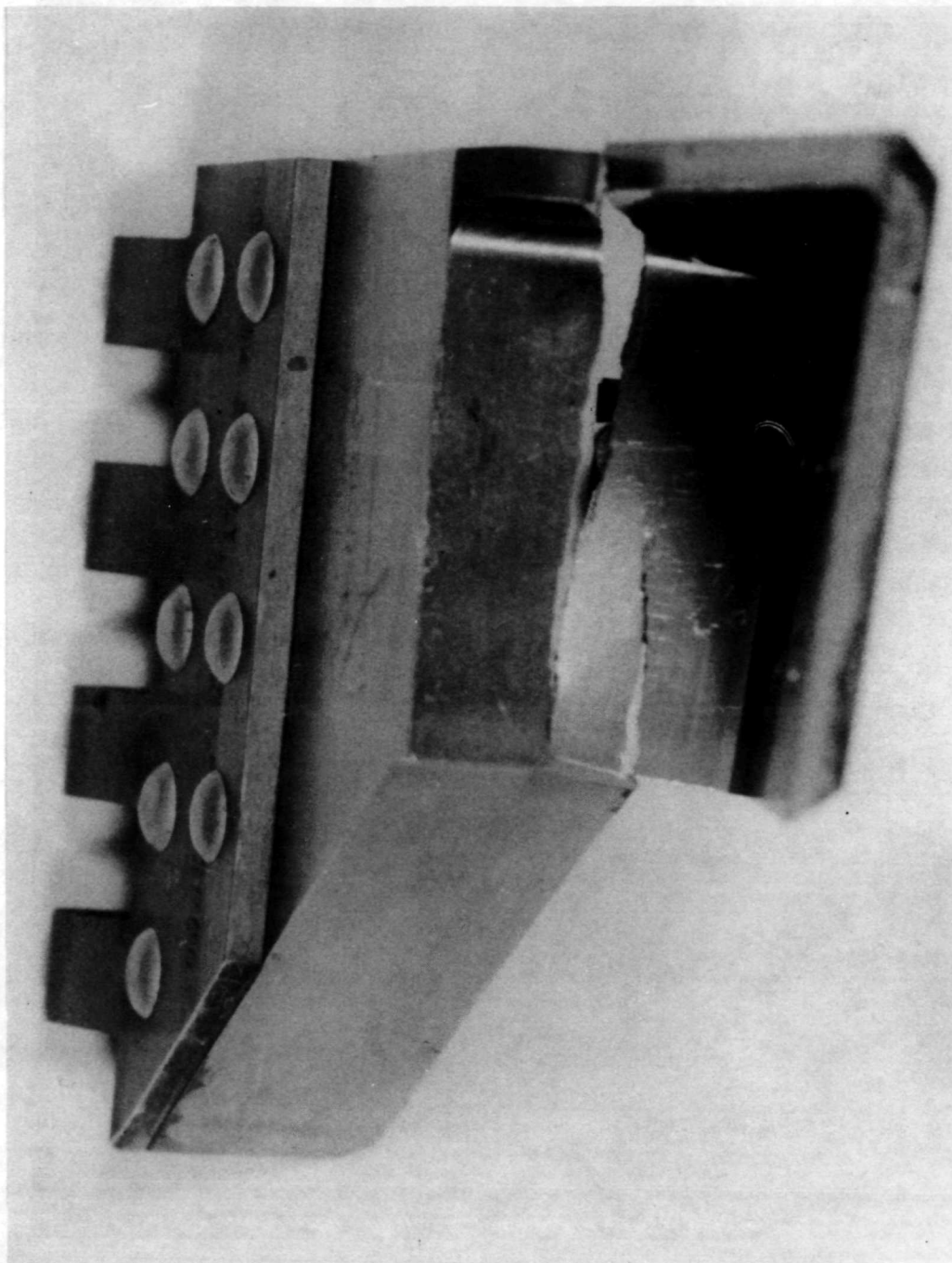


Figure 8. Fitting failure, Case 4, first run.

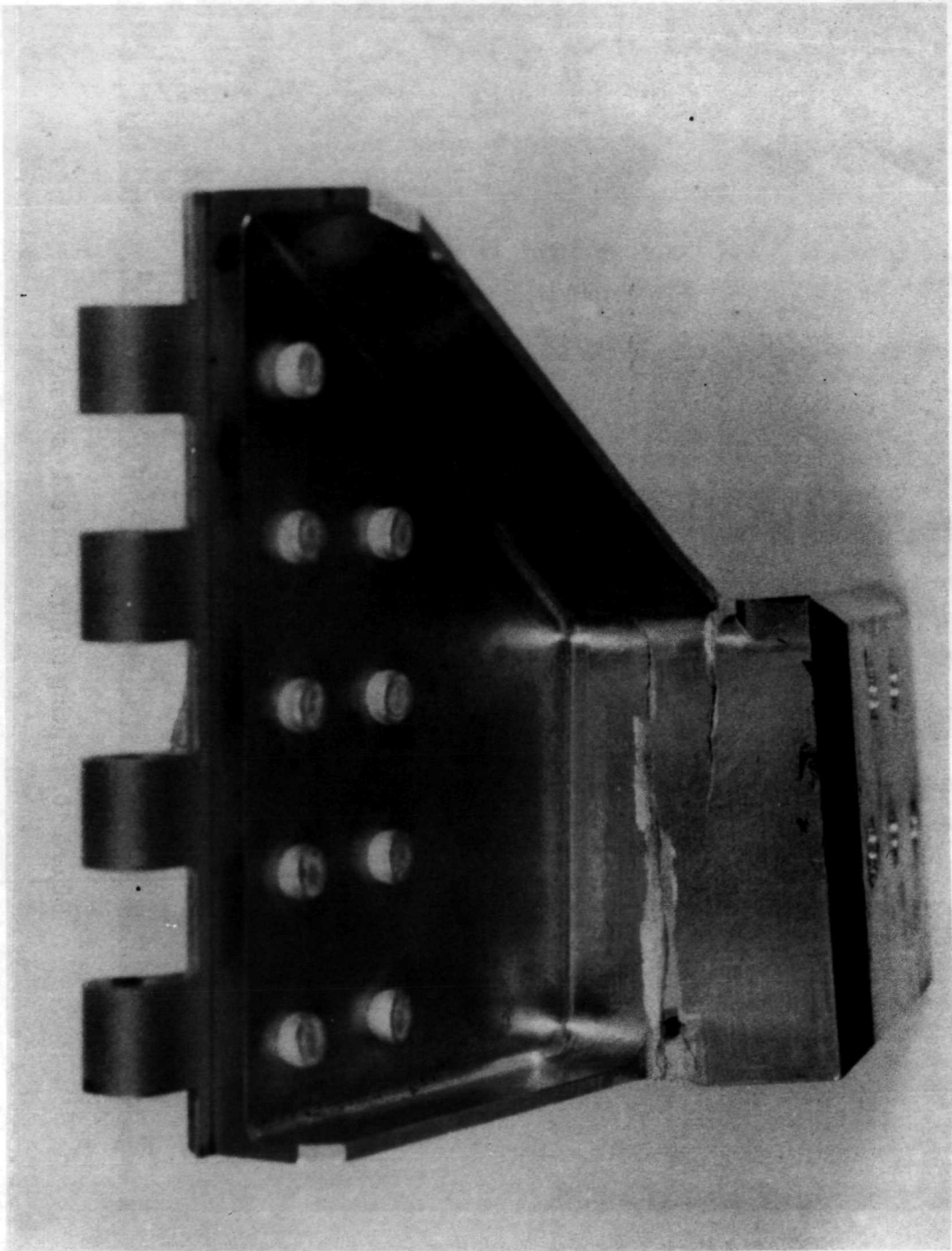


Figure 9. Fitting failure, Case 4, first run.

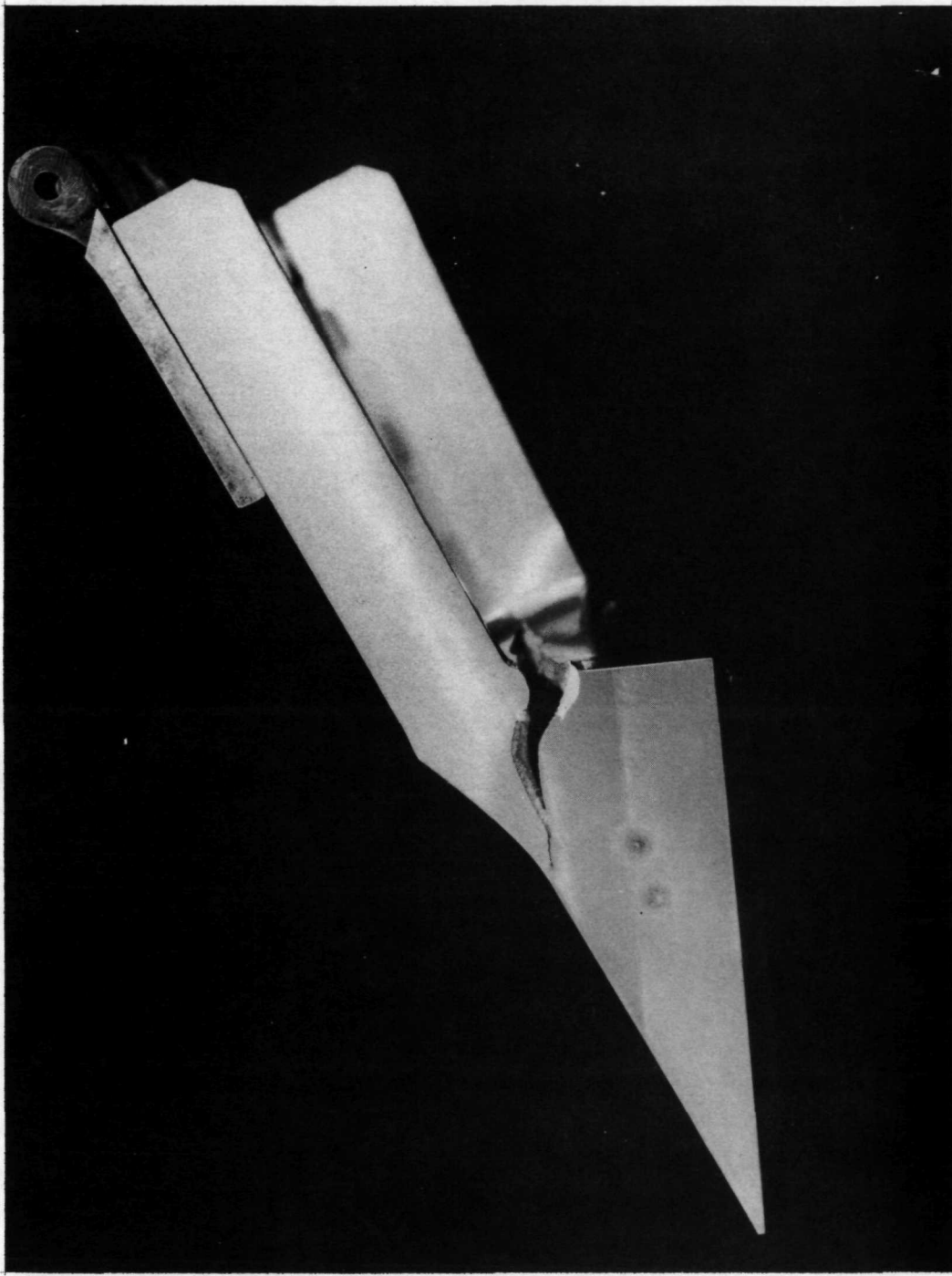


Figure 10. Fitting failure, Case 4, second run.

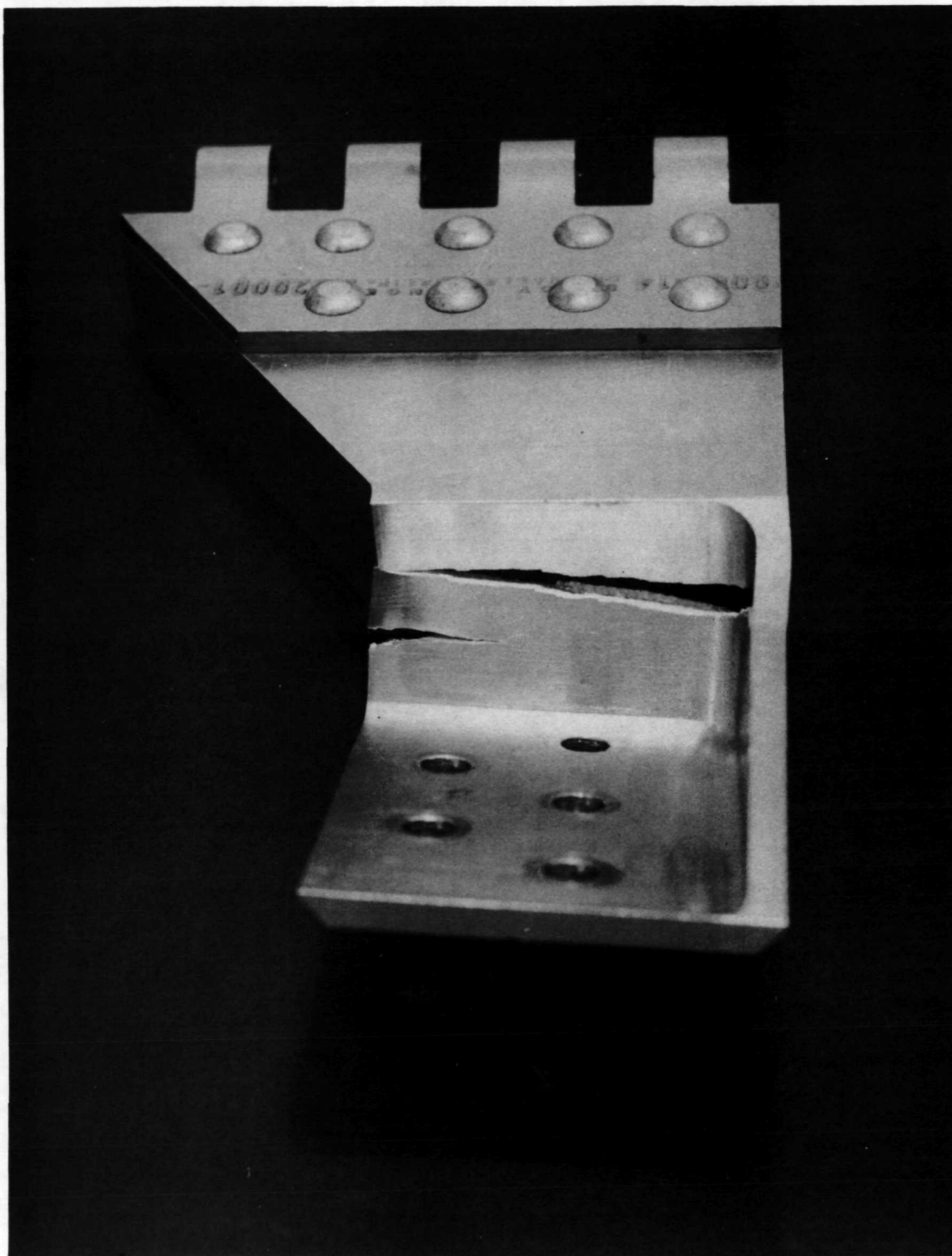


Figure 11. Fitting failure, Case 4, second run.

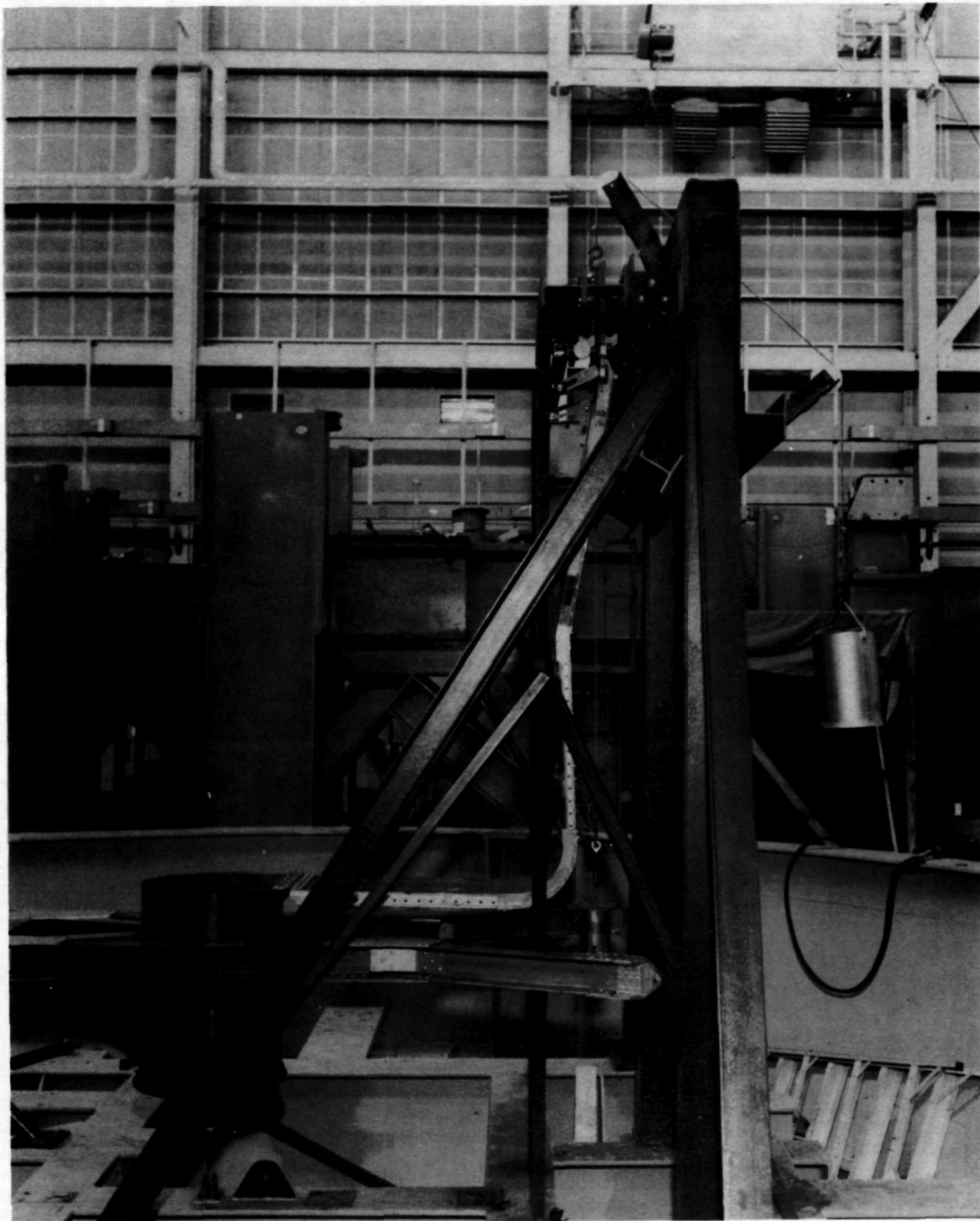


Figure 12. Test setup for arch load deflection tests.

January 1972

## APPROVAL

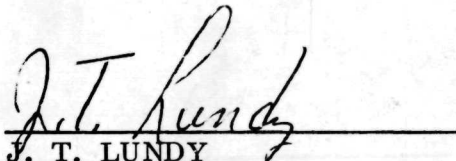
### ATM/CABLE ARCH AND BEAM STRUCTURAL TEST PROGRAM

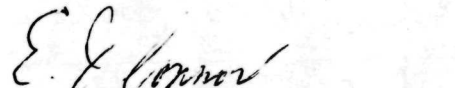
By John A. Housley

The information in this report has been reviewed for security classification. Review of any information concerning Department of Defense or Atomic Energy Commission programs has been made by the MSFC Security Classification Officer. This report, in its entirety, has been determined to be unclassified.

This document has also been reviewed and approved for technical accuracy.

  
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